The Archaeology of the Sesse Islands and Their Contribution to the Understanding of Great Lakes Ceramics

By

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Declaration of Authorship

I, Scheherazade Amin, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signed ……………………………………….

Abstract

The Sesse Islands within the north-eastern sector of Lake Victoria are of particular interest due to their role as a centre of cult practices as recounted in multiple oral and historic traditions. Their interactions with the mainland may be examined through archaeological remains on the islands and the surrounding lakeshore, with ceramics forming the main corpus of material data. Yet despite this privileged social role there has been a lack of any substantive research except on the largest island, with the mainland lakeshore being subject to extensive ceramic analysis in recent decades.

Previous archaeological research in the Great Lakes region of East Africa has been heavily reliant on ceramic chronologies derived from a 'type-variety' method of analysis. It is argued here that this approach is flawed, and that a more replicable and comparative method is required. With successful applications elsewhere on the continent, 'attribute-based' analysis meets such criteria. The Sesse archipelago offers a forum of new ceramic information through which to test applications of this new approach to pottery analysis.

Field research for this thesis took place on three of the islands and has identified a number of ceramic-rich sites. A new analysis of these ceramics is presented in this thesis, which not only calls into question the continued use of broad descriptive typological categories such as 'Urewe Ware', but also offers a direct dating of excavated ceramics using the new OSL method for the first time in the Lake Victoria basin. The results highlight clusters of attributes in the data suggesting patterns of shared and unique ceramic expression within and between the islands sites and the mainland. These shared traditions frame a scenario of aquatic trade within the lacustrine landscape, with certain ceramic traits manifesting localised cultural identity at a time of increased interaction.

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Preface: Concerning the Presentation of Dates

Throughout this thesis any un-calibrated radiocarbon dates will be denoted by the use of lower case initials following the date (i.e. b.p. / b.c. / a.d.), and calibrated dates will be presented in upper case (i.e. BC / AD). Where available all lab numbers have been included for dated samples.

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Chapter 1: Introduction, Research Aims and Thematic Background

1.1 Introduction

The Sesse Islands, which form the basis of this study, are a cluster of fifteen major and several minor islands in the western portion of Lake Victoria (Figure 1.1). Although research on these islands is generally lacking, aside from survey and excavations on the largest island of the archipelago (Bugala), they form part of the wider Great Lakes region of East Africa which has been subject to extensive ceramic analysis in recent decades (Ashley 2005; 2010). This research by Ashley stands as the most comprehensive study of Great Lakes ceramics to date and her ceramic typologies have recently either been applied as chronological determinants by other archaeologists throughout the region, or Ashley has been employed collaboratively as the ceramic analyst for other archaeological research conducted within the region (for application of Ashley's typology in Rwanda see Giblin 2010; 2013; Giblin et al 2010; Humphris 2010. For application in Uganda see Iles 2011; 2013. For collaborative ceramic research see Ashley and Reid 2008; Reid and Ashley 2008; Dale and Ashley 2010; Posnansky et al 2005; Lane et al. 2006; 2007). Aside from published uses of Ashley's typologies, all new sites recorded during fieldwork conducted by the Uganda Museum are dated solely from this typological sequence. However, it is the contention of the present study that Ashley's sequence is inherently flawed due to its unintentional grounding in the type-variety method of ceramic analysis, which has led to the assumption of a narrowly defined, unilinear model of ceramic change based heavily on decorative techniques to define ceramic types, which were established and accepted uncritically from outdated culture-historical research in the region (see Chapters 2 and 3).

Islands in and of themselves have become a feature of focussed research which recognises the influence of the naturally imposed aquatic boundaries affecting varying degrees of interaction and isolation between island and mainland populations (e.g. Fitzpatrick and Anderson 2008; Fitzpatrick and Erlandson 2006; 2007; Rick and

Fitzpatrick 2011; Boomert and Bright 2007; Fitzpatrick and Hunt 1997; Broodbank 2000; Rainbird 2007). The Sesse Islands are a particularly interesting contribution to this arena for their tight cluster within an 'inland sea' context (the archipelago is situated within a 200 km² area), and for their close proximity to the mainland (located only 8km from the shore), suggesting inter-visibility and the short distances may have influenced the interactions which shaped the cultural context of the islands.

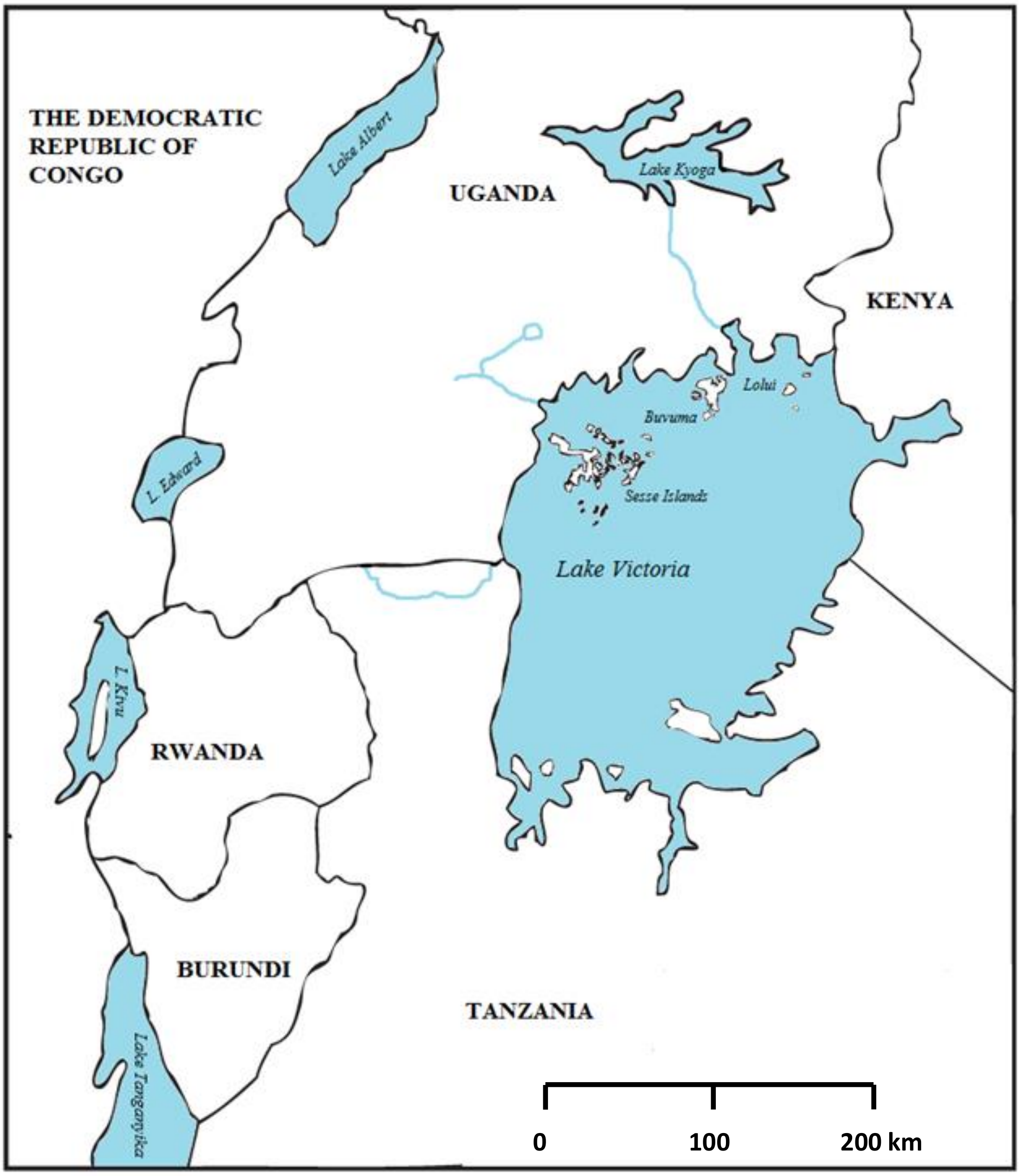


Figure 1. 1: Location of the Sesse Islands in the Great Lakes Region of East Africa (adapted from Hansen and Twaddle 1991:xii)

This liminal zone located away from the mainland and in between the Great Lakes Kingdoms may offer an explanation for the heightened spiritual importance of the Sesse Islands historically, not just for the adjacent kingdoms, but for all populations in the surrounding Great Lakes region. Although the spiritual ideologies of pre-historic cultures are notoriously difficult to gauge from archaeological evidence alone, making the examination of religion through archaeology a rather under-developed sphere of research, oral traditions from the surrounding lakeshores recount the ancestral homes and subsequent shrines of major spirits to be located in the Sesse Islands (see Figure 1.2) (Berger 1973; Phillipson 1977; Roscoe 1911; 1907; Reid 2002; Kyewalyanga 1976; Gray 1910; 1935; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; 1991; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965; Kenny 1977; for a deeper geological history see Beuning et al. 1997; Groves 1934; Gabel 1969; Robertshaw et al. 1983). Current oral traditions in the islands claim them as a cult centre beyond written histories with pilgrims arriving regularly from throughout the Great Lakes region (Amin 2007), and the documented cult importance of the islands throughout the historic period also suggests these islands may have significant time depth in their use. For this PhD study Bubembe Island, Bukasa Island and Bubeke Island were selected for primary fieldwork, based on their association with the highest number of shrines in ethnographic literature and an absence of previous archaeological work (see Chapter 4).

A comment must be made regarding the terminology used when referring to the belief systems encountered within the study region. Early work on African belief systems (typically referred to as 'African religions') was compiled from a Christian perspective and employed such loaded terms as 'fetish', 'pagan', 'heathen', 'idolatry', 'primitive', 'savage', and 'magic' (Pobee 1976). While these Christian-centric terms have been replaced in more recent research with less deprecating nomenclature, the terminology used to discuss historical belief systems must still be clarified. A number of sources already critique the terms 'religion', 'ritual', 'sacred', and 'profane' in detail (see Insoll 2001; 2004; Bertemes and Biehl 2001; Pearson 2001; Edwards 2005; Schiemann 1978; Durrans 2000; Malone et al. 2007; Marcus 2007; Renfrew 2007a; 2007b; Kyriakidis 2007; Tilley 1994; Zubrow 1994; Silverman 1994; Bell 1994). However these terms remain (unavoidably) imbued with culturally derived conceptions when applied specifically to the physical activities associated with spiritual beliefs. Renfrew instead proposes the use of the term ‘cult’ when referring to the activities carried out in association with conceptual ideologies (Renfrew 2007b; Ciesielska 2001), and in my work I will refer to the spiritual activities taking place in the Sesse Islands as ‘cult activity’. Utilising the term ‘religious activity’ would impinge a Eurocentric perspective of what subsidiary factors constitute a ‘religion’, and ‘ritual activity’ may confusingly also refer to practices which follow a predefined form or routine in the absence of any framing spiritual ideologies. The term ‘cult activity’ may be arguably incorrect when compared to respective words and their definitions in local dialects; however as “*the archaeologist interprets material culture for contemporary others*” (Tilley 1993:10) it is necessary to employ words such as ‘cult’ and ‘spiritual ideologies’ to make the discussion interpretable to our “contemporary others”.

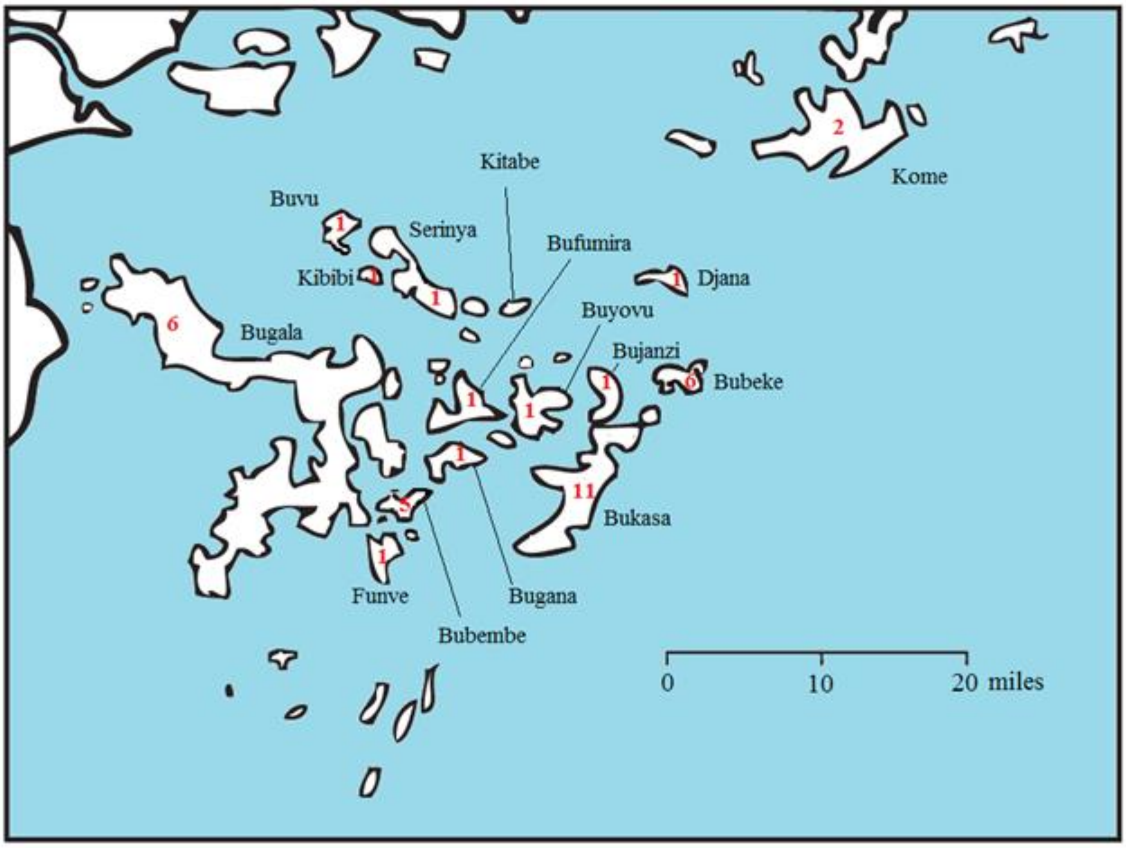


Figure 1. 2: Shrine locations within the Sesse Islands based on ethno-historic texts (red number indicates the number of shrines on each island)

Before exploring the underlying themes affecting this study and the background of the Lake Victoria basin, it is first essential to outline the research aims and questions directing this enquiry.

1.2 Research Aims and Questions

The search for a more appropriate method of ceramic analysis for the Great Lakes region which allows for an examination of variety in the ceramic history as opposed to the use of catch-all types lends the focus of the current research, and my over-arching research question:

> *"Is an attribute-based analysis a more appropriate and useful means of identifying ceramic patterning in the Great Lakes region than existing typological systems?"*

Due to potential biases in the data collection techniques of earlier research, this study cannot simply be based on a re-analysis of older collections, which may be derived from biased ceramic sampling/recovery which would produce skewed results from a subsequent ceramic analysis, but must incorporate new data, which will be drawn from primary research in the Sesse Islands.

While the central aim of this thesis is to assess the suitability of a new method of ceramic analysis in the region, an attribute-based analysis provides potential for also examining contemporary variation across the region beyond monolithic change in ceramic sequences. This bears importance for a number of relevant macro questions (see below). Although we can analyse an object by using statistical tests to indicate which features of the object were chosen selectively from an available range by the manufacturer and which features were created by random coincidence, beyond this identification of manufacturing choices the interpretation of objects must relate to their geographic and cultural contexts.

Returning to the aims of this thesis in light of these geographical and social contexts of the Sesse Islands, it is posited that diversity in material culture often stems from interaction and innovation with the acquisition of both material objects and ideas through trade. As such, under the notion of the Sesse Islands attracting numerous different populations due to their ideological importance and privileged position as a liminal zone between feuding kingdoms, we can offer the following questions addressed to the archaeological 'big picture':

1. *"Does the index of contemporary diversity in the Sesse Islands ceramic culture indicate relative heterogeneity or homogeneity in manufacturing tradition and paste types? In other words do they offer support for the hypothesis that the islands occupied privileged spot in regional trade networks?"*

2. *"How does internal diversity within the Sesse Islands compare with mainland sites, and how do these results elucidate locales of greater trade or interaction as well as the existence/non-existence of contemporary social boundaries across the Great Lakes region in earlier periods?"*

Both the initial methodological question and these two further interpretive questions are part of a broader practical goal to re-evaluate previously proposed ceramic cultural units (e.g. Urewe, Entebbe, etc.) and the degree to which they are viable.

1.3 Further Background to the Study Region: Ecology and Geology

The Lake Victoria basin has an altitude of 1134m above sea level, and was created as the result of a 'continental sag' between two rift valleys. Considering a surface area of 68,800km^2 the lake is relatively shallow with a maximum depth of 80m

(Beuning et al. 1997; Groves 1934; Kendall 1969; Gabel 1969). Ninety percent of the annual water input to the lake system comes from the 1470mm of rainfall per year, which is produced from a combination of evapotranspiration from the lake itself and from the Indian Ocean pressure system (Beuning et al. 1997). Over time fluctuations in the lake levels have been documented. During the Pleistocene the water levels of Lake Victoria were higher, with studies on the lake sediments indicating that at 13,200 b.p. the lake initially rose in depth. From 13,000 – 11,400 b.p. the lake was shallow and hydrologically closed. From 11,400 – 10,000 b.p. there was no extreme change in depth as the isotopic values remained at the level of closed-basin environments, but there was a gradual rise in water level. From 7,250 – 5,400 b.p. the presence of open basin isotopic values indicated high lake levels, and since 5,400 b.p. the overall hydrological balance has remained similar to modern conditions (Beuning et al. 1997:1084). These dates roughly correlate with Kendall's 1969 study of lake level changes, based on an examination of carbonates, organic matter, exchangeable cations, mineralogy, diatoms, levels of green algae, and pollen from two dated sediment cores form Pilkington Bay on the northern side of Buvuma Island (Kendall 1969).

More recent research techniques provide an insight into the less pronounced and more recent lake level fluctuations in East Africa. Identification of changes in the presence of single-celled algae in Lake Victoria sediments suggest changes in rainfall (and thus lake levels) to correlate with a cyclical change in sunspot radiation over the past millennia (Stager and Johnson 2000; Stager et al. 2005). Based on new cores from Pilkington Bay periods of aridity are recorded from 820 – 760 BP, 680 - 660 BP, 640 – 620 BP, 370 – 340 BP, and 220 – 150 BP where the lake levels were at their lowest during the entire second millennium AD. Alternate high lake levels were identified from 600 – 400 BP and 300 – 250 BP (Stager et al. 2005). Studies of sediments from other lakes within East Africa (Naivasha, Turkana, Tanganyika) support these short term wet and dry episodes as universal to the wider region (Nicholson and Yin, 2001; Verschuren et al. 2000; Cohen et al. 1997; Halfman et al. 1994). Historic evidence and oral traditions from the past 600 years correlate the more recent dry periods in Lake Naivasha with famine, political unrest, and migration, and wetter periods to political stability, kingdom growth, and consolidation (Webster 1980; Verschuren et al. 2000).

Archaeological evidence for periods of higher lake levels come from raised beaches. In the north-eastern part of the lake around the gulf of Kavirondo there are 30m and 10m raised beaches dated to the Gamblian (pre-Pleistocene), 6m beaches representing the early-post Pleistocene, and below 6m there are Iron Age shell middens (Gabel 1969). On the northern lakeshore one beach at 3m above the lake level has been dated to 3720±120 b.p. (lab number Y-688 (Stuiver et al. 1960)), and two other beaches at 18m and 12m have been provisionally dated 7,200 – 5,400 b.p. based on cellulose data (Robertshaw et al. 1983; Beuning et al. 1997).

Figure 1.3 indicates the geology of the western and northern shores of Lake Victoria, with the sites and locations discussed within this piece of work marked upon the map. The Sesse Islands, which are the main focus of this study, have been predominately associated with the Mityana geological group, characterised by sandstone and 'conglomerate' (number 22 on the map). This geology is restricted to the Sesse Islands, Kome Island further north in the lake, and the environment around Lake Wamala on the mainland. However, whereas the 'Sesse Formation' is characterised by fine-grained sandstone, the Mityana group on the mainland also contains mudstone, which is rare in the islands (Westerhof et al. 2014). Sandstone is a sedimentary rock comprising mainly of clay minerals (e.g. hydrous alumina-silicates containing high percentages of iron and magnesium) and quartz similar to claystone, siltstone, and mudstone, though the differentiation lies in the grain size with sandstone the largest of these, measuring from 0.032 – 2mm (Merriman et al 2003). While sandstone may be regarded as the consolidated equivalent of various grades of sand from very fine to very coarse, 'conglomerate' simply refers to rocks of the same composition which are the consolidated equivalent of 'gravels', i.e. presenting a wider variation in particle size (Wentworth 1922).

Within the Sesse archipelago, Funve Island to the south of Bubembe Island exhibits a unique geology (number 34 on the map), which is also present no the westernmost tip of Bugala island closest to the mainland, and also prevalent throughout the mainland.

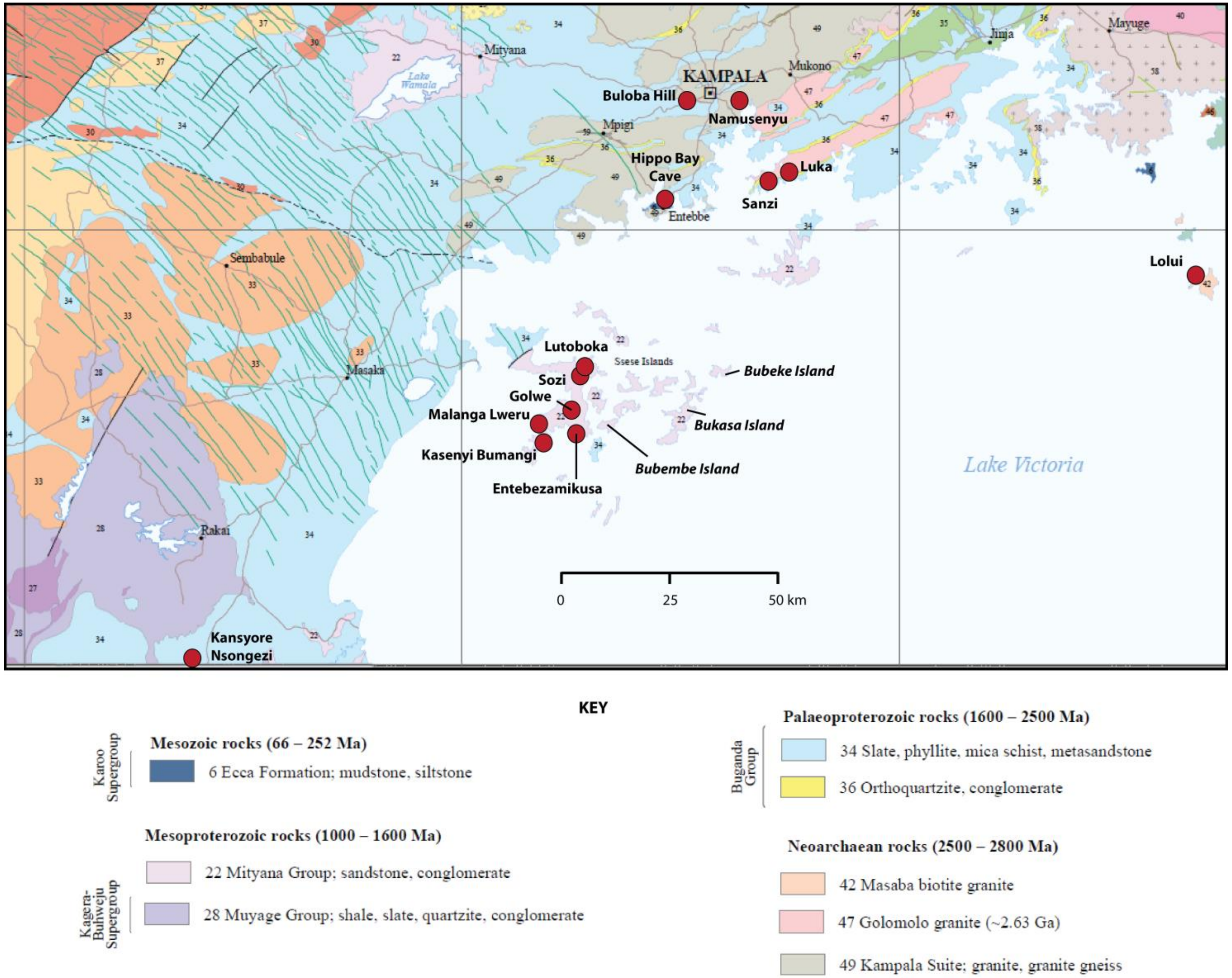


Figure 1. 3: Geological map of the Ugandan portion of Lake Victoria, with sites and locations discussed within this thesis marked (adapted from Lehto et al. 2014)

This is referred to as the Buganda geological group, characterised by slate, phyllite, mica schist, and metasandstone. Slate is the metamorphic equivalent of mudstone and thus is also composted of clay minerals and quartz. It is a 'textural root name' used to describe the cleavage of the grains in rock classification schemes, and is used when little is known about the rock, except that it is fine grained with a 'slate' cleavage (Merriman et al. 2003; Robertson 1999). Phyllite is a rock with a 'silky' or 'lustrous' sheen and incorporates fine grained white mica crystals below 0.1 mm in size. Slate also contains mica, but whereas in slate the mica is too small to be visible, the mica grains in phyllite are identifiable with the naked eye (Robertson 1999). Schist is another textural root name, and therefore 'mica schist' is simply a medium grained mica rock. 'Mica' itself includes metamorphic minerals such as chlorite, garnet, cordierite, staurolite, andalusite, kyanite, sillimanite, and other minor components (Robertson 1999). Finally 'Metasandstone' is simply a sandstone which is known to derive from a 'sedimentary protolith' (Robertson 1999). Therefore we can ascertain that the few areas of the Sesse Islands and the large swathe of the mainland in the west with a number 34 geology on the map is primarily comprised of rocks and minerals defined by a high mica content.

On the northern lakeshore the dominance of the Buganda geological group described in the preceding paragraph is interrupted by the grey area designated as number 49 on the map, identified as the 'Kampala suite' and characterised by granite and granite gneiss. The adjacent pink area is associated with another type of granite, referred to as 'Golomolo granite'. Granites are igneous rocks occurring in a range of textures from fine to coarse grained, and contain quartz and feldspars as standard, either with or without the occurrence of other minerals (Dale and Gregory 1911; Talabi 2013). Granite gneiss is formed from granites which have been metamorphosed by a rearrangement of the minerals in the granite into well marked planes, and the production of new micas; the grains in the gneiss are finer and aside from quartz and feldspar, granite gneisses contains muscovite, biotite (both types of mica), and opaque minerals (e.g. garnet, magnetite) (Dale and Gregory 1911; Talabi 2013). The Kampala suite granitoids are distinct from the surrounding granites due to their higher K-values producing a stronger radiometric signature, but otherwise the Kampala suite contains the same minerals as the adjacent Golomolo granite, characterised by K-feldspar, plagioclase (a silicate of the feldspar group), quartz and biotite (Westerhof et al. 2014).

Further east within the lake a different type of granite, referred to as 'Masaba biotite granite', is found on Lolui Island. As described above, this is a typical granite characterised by quartz and feldspar as standard, though in this case dark coloured biotite micas feature frequently. Biotite tends to occur in granites with a very high quartz content, which conversely reduces the presence of the mineral hornblende, and the feldspars associated with biotite granite tend to be white or pinkish in colour (Westerhof et al. 2014; Dale and Gregory 1911).

Finally on the northern lakeshore there is an isolated occurrence of the Ecca formation mudstone and siltstone on the Entebbe peninsula (coloured dark blue and labelled number 6), and yellow slivers of orthoquartzite and conglomerate, labelled number 36. The Ecca formation on the Entebbe peninsula occurs in a fault banded area measuring only 1-2 x 5km, and in this location siltstone does not feature alongside the mudstone. As described above, mudstone is similar to sandstone in that it is comprised of quartz and clay minerals, though with a finer grain size (<0.032mm). (Merriman et al 2003; Wentworth 1922; Westerhof et al. 2014). Quartzite is a metamorphic rock derived from sandstone during tectonic compression, comprised largely of quartz, and/or feldspar, and/or mica, with a less than 10% presence of carbonate and/or calcsiliate minerals. Specifically, 'quartzite' implies the rock contains more than 80% quartz and 0-20% mica. 'Ortho' is simply a prefix which identifies the quartzite as an igneous protolith in this instance (Robertson 1999; Talabi 2013).

From this summary we can ascertain that quartz is universal throughout the geology of the study region, and feldspar and mica occur frequently, though some areas have a heightened presence of micas. The Sesse Islands feature a homogenous sandstone and conglomerate geology, with the occasional appearance of a slate, phyllite, mica schist, and metasandstone lithology. In comparison while the land adjacent to the lake in the west features a fairly homogenous lithology (number 34), the northern shores feature a greater geological diversity. This range of lithology within the study region would produce differing clay and mineral raw material sources for exploitation by human populations within the region, depending on their location and access.

All available archaeology conducted on post Stone Age human settlements around the lakeshore was analysed in Ashley's 2005 work, which challenged the pre-existing archaeological and chronological sequence for the Iron Age in Uganda based on innovations in ceramic typologies, and identified a continued presence of settlements from the Late Stone Age to the Late Iron Age (Ashley 2005). While parts of the mainland lakeshore have been analysed, the Sesse Islands were never researched archaeologically until the past decade, bar a largely unsuccessful survey by Fagan and Lofgren in the 1960s. The only island in the Sesse archipelago which has been subject to extensive archaeological investigation is Bugala. Andrew Reid conducted a survey and reconnaissance excavations on Bugala Island from 2002-2003 and he identified several Early Iron Age sites which were not recorded by Fagan and Lofgren. It is likely Fagan and Lofgren may not have identified other archaeology in the archipelago. In addition vegetation, landscape, and ground visibility has altered in the past half century, changing the potential for archaeological survey.

During Reid's work on Bugala Island, excavations at Entebezamikusa provided the earliest EIA date in Uganda (1890±60 b.p.), suggesting knowledge of maritime technology at this time with the ability to settle offshore islands (see Chapter 2.8 for dates from Reid's research) (Ashley 2005). Evidently there is a long continuity of habitation which is unparalleled on the mainland, yet few observations have been made of the islands to confirm this occupation (McFarlane 1967). Investigations on other islands nearby Bugala may exhibit traditions of a similar antiquity and equally may help to explain the presence of universal or locally different ceramic styles throughout the region.

Any research in the Sesse Islands needs to be carried out as soon as possible, as there is an on-going government approved project in Uganda to demolish the natural vegetation of the larger islands in the archipelago and replace it with commercial oil palm crops. This process has been completed on Bugala Island, and is now being carried out on all major islands in the Sesse group. Therefore any archaeology in the islands must be conducted now, as in a decade the landscape will have been radically altered and archaeological sites will have been destroyed.

1.4 Paradigms Affecting Research: Coastal and Islands Archaeology

At the beginning of this chapter I mentioned the unique position of the Sesse Island as an example of habitation and socio-economic development in an 'inland sea' environment, making the study region of interest to the recently separated sub-discipline of 'Coastal and Island Archaeology'. As the general discipline of archaeology has developed, attention has become increasingly focussed on how people interacted along different boundaries and borders, and how this influenced social change (Fitzpatrick and Erlandson 2006; 2007; Rick and Fitzpatrick 2011; Fitzpatrick and Anderson 2008). Islands, separated from land masses by bodies of water whether large or small, provide an interesting opportunity to examine adaptations in the nature of human interactions over these naturally imposed boundaries, primarily in examining varying degrees of isolation and interaction between the island and mainland coastal populations (Fitzpatrick and Anderson 2008; Boomert and Bright 2007; Broodbank 2000; Rainbird 2007).

The Sesse Islands located in Lake Victoria (see Figure1.1) are an excellent contribution to the sub-discipline of Coastal and Islands archaeology. This archipelago of fifteen major and several minor islands in the western lake, located only eight kilometres from the shore and within a 200 km² area of one another, provide a unique opportunity to study a closely clustered group of islands of varying sizes in an 'inland sea' context. Furthermore, research in this geographic location also contributes to the understudied discipline of African archaeology. Past research in sub-Saharan Africa reveals that due to a combination of political factors, western colonial research paradigms, and the subsequent focus of the independent governments, certain areas of the continent are either archaeological *terra incognita,* or have been investigated solely for their contribution to pre-historic hominid and Stone Age archaeologies (for further discussions on the gaps in research into the history of Africa see Robertshaw 1990a; 1990b; 2012; Connah 1998; Posnansky 1969; Ashley 2005).

The uneven distribution of past research in East Africa highlights that the Sesse Islands require further archaeological investigation and contextualization within the changing patterns of human development in the Great Lakes region. Islands archaeology itself has a rich tradition of focus on past island populations, the particular dynamics of colonization and abandonment that islands may have, and their often complex relationships of interaction with nearby peninsulas, mainland or in this case lake shores. Therefore the archaeological research on the Sesse Islands and an examination of the interaction between the islands and the mainland lakeshore will draw upon existing paradigms of Coastal and Islands Archaeology, which focus on interactions across the aquatic border zone rather than interpretations limited to the island communities in isolation, to facilitate methodological and interpretive approaches to the archaeological record.

The launch of the journal of coastal and island archaeology in 2006 demonstrates how these themes of coastal and island interaction in antiquity have been developing over the past decade (Fitzpatrick and Erlandson 2006; 2007; Rick and Fitzpatrick 2011). Within an African context these island-specific archaeological approaches have been predominantly applied to marine contexts (Abungu 1998; Boivin et al. 2013; Chami 2002; Christie 2011; Kusimba et al. 2013; Breen and Lane 2003; Blench 2012; Mitchell 2004; Kessy 2011; Horton 1996; McConkey and McErlean 2007). A study of the Sesse Islands embedded within a wider framework focused on the dynamic interactions between developing lacustrine communities through a re-analysis of lakeshore ceramic collections will provide an interesting perspective on themes of coastal and island archaeology, and a rare consideration of islands in both African and lake contexts. Themes of coastal and island archaeology concerning interactions with the environment (e.g. raw material and resource acquisition), and between the islands and lakeshore can serve to shape a discussion of the Sesse Islands within regional archaeological narratives, and how these constructs have shaped the lakescape in this context.

Geographically, "*an island is typically described as a land mass completely surrounded by water*" (Fitzpatrick and Anderson 2008:6), which defines the Sesse Islands. The separation of islands by water has the effect of reducing accessibility and linkage, and protecting island biotas from predation, competition and disease

(Fitzpatrick and Erlandson 2006). This idea of islands as isolated, bounded environments initially arose in evolutionary biology from Charles Darwin's experience on the Galapagos, and was adopted by twentieth century anthropologists who claimed islands could be used as isolated natural laboratories for human cultural variation (Boomert and Bright 2007). Island biogeography was developed in the 1960s and 70s to transfer the idea of insular environments as singular units of analysis from anthropology to archaeology. Oceanic islands were taken as the 'idealtype' of the insular island until after a conference in 1974, when it was realised that viewing the cultural development of islands in complete isolation was flawed by the researchers' assumption of a lack of cultural interaction (Fitzhugh and Hunt 1997:381; Boomert and Bright 2007; Broodbank 2000; Rainbird 2007).

Initially it was anticipated that distance from the island to the mainland was the main influencing factor affecting colonisation of islands, as propagated by MacArthur and Wilson's book "*The Theory of Island Biogeography*" (Boomert and Bright 2007:6). These notions were quashed in the 1980s Post-Processual reaction to earlier theories in archaeology, and it was recognised numerous other factors such as geology, ecology, environment, and the ability to travel impacted the colonisation of islands, rather than simply size and distance (Keegan and Diamond 1987; Boomert and Bright 2007). However new approaches still had an overwhelming focus on adaptive models and the simple, static concept of insularity (Broodbank 2000). Subsequent research has shown that islands are not isolated, closed systems but vary in inter-island and mainland interactions, though "*while islands cannot be assumed to support human population isolates, geographic variability nevertheless imposes important dynamic constraints on socio-ecological evolution*" (Fitzhugh and Hunt 1997:381). These arguments for islands to be analysed as part of a broader interactive system emphasises a need to consider a 'lakescape', which incorporates both the Sesse Islands and the coastal environment of Lake Victoria in the current study.

The following points were made in Erlandson's (2008) review of isolationist versus interactionist arguments in island archaeology:

> "*(1) the geography of islands around the world varies tremendously, as does the history of specific island societies;*

(2) while the sea was often a barrier to human exploration and interaction, it also facilitated travel and trade for many later and more sophisticated maritime people;

(3) isolation and interaction are relative states that form a continuum ranging from complete isolation at one end of the spectrum to constant and uninhibited interaction on the other;

(4) many islanders had extensive interactions with neighbouring groups for a variety of different reasons;

(5) other islands were isolated to varying degrees – sometimes intentionally and sometimes not – depending on a variety of geographic or cultural factors;

And (6) due to many cultural and natural factors operating on many different scales, the degree to which virtually any island (or other) society was isolated or interactional varied through space and time."

(Erlandson 2008:83)

From these reactions to earlier forms of practice, 'Coastal and Island Archaeology' proper was born. Coastal and Island Archaeology is a multidisciplinary field concerned with issues related to the archaeology and historical ecology of island and coastal environments worldwide, and understanding "*how humans developed socially and biologically through time, as well as the impacts our ancestors have had on these unique and diverse ecosystems*" (Fitzpatrick and Erlandson 2006:1).

The editorial of the first issue of the main contributing journal (titled to match the sub-discipline itself) outlined the following questions as the central focus of research in coastal and island environments:

1- "*How and when were various islands and coastal regions first colonised?"*
2- *"What seafaring, navigational, or other specialised technologies were required to successfully colonise island and coastal ecosystems?"*
3- *"To what degree were various island and coastal societies isolated and how did that isolation affect colonisation processes and subsequent cultural developments?"*

4- *"What did humans bring with them to ensure their survival in island or other coastal settings?"*

5- *"How did such 'transported landscapes' – packages of exotic goods, plants, and animals – affect the natural ecosystems of various areas?"*

6- *"Did cultural isolation or insular environments influence demographic change and the development of socio-cultural complexity?"*

7- *"What types of settlement patterns occurred along coastlines and what variables caused these to change over time?"*

8- *"What types of coastal resources were exploited and to what degree did culture, climate, and the social behaviour of animals influence procurement strategies?"*

9- *"How far were these* [coastal] *resources travelling and what importance did societies place on these exotic goods?"*

(Fitzpatrick and Erlandson 2006:1-2)

These developing notions of Coastal and Island Archaeology bear relevance to the current research project. The Sesse Islands were colonised beyond Bugala Island at some point because the first ethnographic texts at the end of the nineteenth century record populations throughout the archipelago; however we do not know the antiquity of this occupation outside Bugala. Something which must also be considered under the theme of Coastal and Island Archaeology is the perception of the water barrier and relative isolation by the indigenous communities living within the aquatic environment. Records form the Buganda Kingdom suggest water to be an important perceptual boundary, with compounds of potentially conflicting powerful social entities within the royal capital separated by streams of flowing water (Hanson 2009). Furthermore, "*Lake Victoria was perceived, deep in the Ganda Psychology, as a 'barrier' and a natural defence ... but the Ganda did not hide behind the lake. Rather, they sought to control it*" (Reid 1999: 50). Regardless of theories purporting the isolation or interaction of island and mainland communities in terms of resource availability and maritime technology, the key issue in Lake Victoria is the perception of the Sesse Islands as conceptually separated by a boundary, which likely played a role in the autonomous social practices of the islands and the development of key ritual sites within them.

In terms of the ceramic data, which is the ultimate material focus of this thesis, excavation and analysis of temporal change in ceramics will give some time depth to the cultural development within the Sesse Islands. Most crucially, a comparison of locational patterning in the ceramic data throughout the islands and on the lakeshore from the comparative collections will elucidate whether there was a shared material culture throughout the region, or independent and localised manifestations. The results of this will be interpreted with the aid of the theories present in the discipline of Coastal and Island Archaeology, most importantly whether the patterns in the ceramic material culture hint towards isolated development in parts of the islands, or whether there is evidence for trade and interaction through shared culture. The differences in material cultural throughout the region may be interpreted as reflective of factors such as raw material patterning and resource availability, as well as ease of access and transport. In the case of the Sesse Islands, this may relate to historic references of political and religious interaction with the mainland populations; the Sesse Islands were the focus of ritual power for the adjacent Buganda Kingdom located on the northern lakeshore (Kenny 1977). At certain times in history the island were at war with Buganda, at other times the islands remained autonomous but in co-operation with the mainland kingdom and at times when the '*Kabaka*' (king) of Buganda reached heightened power the islands were conquered and subsumed under the rule of the kingdom (Reid 1998; Kodesh 2007). Furthermore, as late as 1863 Speke commented on how difficult it was in Buganda to access boats for crossing Lake Victoria, emphasizing a difficulty in the access to the islands, possibly due to their remote position within the lake (Claessen 1984:366), though this may have changed over time and could relate to a lack of resources (e.g. suitable wood for canoes) in more the more recent history of the region. These paradigms are explored in detail below, as they are likely to have had a changing impact on the ways in which ideas and physical goods moved into and out of the Sesse Islands through time.

1.5 The Socio-Political Background to the Sesse Islands, and their Importance for Regional Ideologies

To fully interpret the ceramics from the Sesse Islands, it is necessary to examine the wider context of the islands within the entire 'lakescape'. This involves a consideration of factors not just relating to the biogeography of the islands and the coastline but also including and cultural attitudes and ideological concepts directed towards the islands, making it essential to consider ethno-historic texts as well as archaeology. The Great Lakes region in which the islands are located incorporates west, south-west and southern Uganda, north-western Tanzania, Rwanda and Burundi, which was home to the historic kingdoms of Buganda, Bunyoro, Ankole, Rwanda, Burundi and Buhaya (Berger 1973; Phillipson 1977). The Sesse Islands have been recorded in oral accounts and ethno-historic records at the time of European contact as having been heavily populated and bearing an overwhelming ritual significance not only to the islanders, but also to the mainland kingdoms and populations beyond the immediate coastal zone (Roscoe 1911; Gray 1910; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965; Kenny 1977). Lake Victoria itself "*provides an image of natural power at its most generic; things in the Lake or projecting out of it are manifestations of this power*" (Kenny 1977:718). With ethnographic evidence indicating the Sesse Islands were actively sought out for the performance of rituals, it is suggested "*islands are suitable for mediatory roles since they are ambiguously placed between sea, earth, and sky and are physically and conceptually isolated, but most particularly in this instance because they are in contact with Lake Victoria*" (Kenny 1977:719). These ritual conceptions ascribed to the Lake by the local populations are an essential part of the lakescape.

The ethno-historical texts relate the cult structures of the Sesse Islands most importantly with the Buganda Kingdom on the northern lakeshore, with the islands serving as the main centre of cult activity for the kingdom. Buganda stretches 200 miles along the shore of Lake Victoria and it was recognised as the most powerful pre-colonial Kingdom in the lake region, having been established in the fourteenth century under the first *Kabaka* (king) (Insoll 1997; Ray 1991). Although small scale agropastoralism was practiced, the economy of Buganda was largely supplemented by extracting income from the surrounding societies, and from the 14^{th}-16^{th} centuries onwards became largely dependent on intensive banana agriculture (Hanson 2009; Kodesh 2008). Buganda was flanked by hostile groups on all land borders, making the national boundaries and internal cohesion all the more necessary (Ray 1991; Roscoe 1911).

The earliest ethnographies recording the Buganda Kingdom came from travellers, missionaries and oral data. The first British explorers arriving in East Africa in the mid-nineteenth century remarked upon the sophisticated political structure of Buganda and its neighbour Bunyoro (Claessen and Oosten 1996). The most reliable accounts, which are the only available for the kingdom before missionary texts, include Speke (1863), Grant (1864) and Stanley (1878). Grant is valued as having provided an accurate portrayal of life at the royal capital (Southwold 1961; Ray 1991). The first missionaries arrived in Buganda in 1877, and the Reverend John Roscoe (1911) compiled a detailed account of Buganda, the only source for the history of Buganda after earlier traveller accounts (Musisi 1991; Southwold 1961; Ray 1991).

The Buganda Kingdom fits the idealtype of the early state (Claessen and Oosten 1996); it was centralized and hierarchical with the *Kabaka* (as he is referred to in the local dialect utilised within Buganda) as 'lord' of the group, governing all politics and trade (when the British took over in the late nineteenth century, they instigated an indirect rule and left the pre-existing political structure mostly intact) (Musisi 1991; Southwold 1961). Although the Baganda are divided into clans (there were twenty-one noted when the kingdom was established and fifty by the mid-twentieth century), no single clan is affiliated to the role of *Kabaka*. Instead, successive *Kabakas* are chosen by the kingdom chiefs, and princes adopt their clan from their maternal line, allowing all clans to stand a chance of one of their members one day being appointed *Kabaka* (Southwold 1961; Kodesh 2001).

Below the *Kabaka* in the authoritative structure of the kingdom was a sector of chiefs or 'administrators'. Chiefship was generally an appointed office, though a few were hereditary. These operatives functioned under direct control of the *Kabaka*, with the chiefs forming the 'aristocracy' of the Kingdom (Southwold 1961). Roscoe's account claims there were ten districts in the kingdom run by twelve important chiefs all under ultimate authority of the *Kabaka* (Roscoe 1911). However it is likely the number of districts and their chiefs fluctuated through time as the borders changed and incorporated new territories.

The *Kabaka* was only able to rule successfully due to his power to kill his subjects; as the source of all justice and order, "*the king and the law were one*" (Ray 1991). Evidently the position of the *Kabaka* was maintained through coercive power. Taxes, referred to as "tribute", were extracted from the population to uphold the state. In what Kagwa refers to as 'the middle ages' in Buganda's history, the obligatory tax was in grain and beads, incorporating cowrie shells once they were established as a format of currency. Livestock were taxed from farmers, during wars those not willing to fight were taxed, there was a tax on imported goods, and a general family tax, among others. Bachelors are noted as the only group exempt from taxation (Kagwa 1934).

This centralized political structure was run from and organised around the royal capital, or '*kibuga'* in the local dialect. The *kibuga* was first recorded by explorers in the mid-eighteenth century, characterized by its location on a hilltop that could be easily defended with escape routes for the *Kabaka*. With each new *Kabaka*, the *kibuga* was relocated to a new hilltop. From the death of King Suna II in 1856 until 1890 the capital was moved ten times; Speke recorded Mutesa I's capital at Banda-Baloga in 1862, in 1875 Stanley found the capital at Rubaga, and since 1885 it has been on Mengo Hill. Over the past two hundred years all the capitals have been located in central Buganda close to Murchinson Bay on Lake Victoria (Gutkind 1963; Roscoe 1911; Hanson 2009). The capital itself centered on the palace enclosure (*lubiri*) of the king, which in Roscoe's plan measured one by one half miles and was located in the southern part of the *kibuga*. The palace enclosure was orientated with Lake at the rear, with private roads from the palace to the lake so the *Kabaka* could escape and head to the islands for refuge (Ray 1991). In front of the palace was the court (*mbuga*), and surrounding this were the chiefs compounds. These internal divisions symbolically reflected the districts of the kingdom. In the spaces relating to the districts within the capital there was a provision of empty land on which each district chief was required to maintain a hut compound (Gutkind 1963; Ray 1991; Kodesh 2001; Hanson 2009).

Considering the Sesse Islands served as the main centre of cult activity for the Buganda Kingdom, Speke in 1863 commented on how difficult it was in Buganda to get boats for crossing the lake, which was taken to suggest remoteness in the location of the islands (Claessen 1984:366). However, restricting foreign visitors from access to boats and thus transport to the Sesse Islands may have instead been a method of controlling access to the most important ritual sites in the Buganda Kingdom. Clan histories indicate the importance of the Sesses for cult activity, and specific clans (e.g. the Genet Cat Clan and the Lungfish clan) controlled land on the mainland lakeshore from which canoe travel to the islands was highly regulated, and sometimes even controlled the management of major island shrines (Kodesh 2007; 2010). This exclusivity of access to ritual sites extends to the present day; between 2007 and 2012 I have visited the same area of central Bukasa Island three times, and with each visit I am privy to viewing a more important (and more hidden) shrine as I am no longer considered a stranger.

Kenny (1979) records the Buganda Kingdom as pivotal in the manufacture of sewn canoes for trade purposes, due to the lack of suitable canoe-building resources elsewhere. It is likely such an important resource, and hence access to boats, would be controlled by the state. The location of major cult activities in the Sesse Islands may have placed ritual practices beyond control of the state; the American traveller Chaillé-Long (1876) claimed that within only a day's walk from the Buganda capital the population would actively contest the king, and the French lieutenant Linant de Bellefonds (1876) agreed with Speke and Chaillé-Long about this lack of internal cohesion in Buganda (Claessen 1984:366). If the ruler could not even effectively implement his authority beyond a day's walk of the capital, it is unlikely he would be able to fully control a cult centre as peripheral as the Sesse Islands, which may well have remained socio-politically autonomous. This may also be the case in earlier periods. Rigby claims that spiritual practice in Buganda was initially centralized, and as Islam and Christianity grew, traditional rituals declined in the public and political domain, though the decentralization of cult activities was already in progress in the pre-colonial period (Rigby 1975:132). However, I would suggest that decentralization is not the issue, as spiritual activity appears to never have been centralized in Buganda in the first place. Oral traditions and the mythologies indicate that ritual practices were carried out in the peripheral areas of the kingdoms throughout the Interlacustrine region, and often were associated directly with the lake in both their ideological and physical sense. In all historic records of the Buganda Kingdom, the practice of cult activities in the capital has never been constant but has always appeared intermittently through time.

Despite inadequacies of the historic literature, these texts are still able to inform on the structure of the traditional cult practices taking place in the Great Lakes region with a focus on the Sesse Islands, which appears to follow a basic formula for the Great Lakes belief systems (Parrinder 1954; Beattie and Middleton 1969). Cult practices tend to revolve around spirits, of which there are some major distinctions. One very important category incorporates the spirits of deceased family members, i.e. ancestors. These are referred to in the Western Lacustrine Bantu languages as '*-zimu*', and specifically '*muzimu*' in Luganda (Schoenbrun 1998). *Muzimu* can only exist if there are living descendants to remember the spirit. These ancestral spirits are the most frequently venerated aspect of traditional cult practice in Buganda, though on a personal and clan level rather than as a concern of wider society (Roscoe 1911; Welbourn 1962; Berger 1973; O'Donohue 1997; Ray 2000; Kodesh 2010). Although different categories of spirits and alternate ritual beliefs exist elsewhere in the African continent and are interpreted differently within each community (see Addison 1924; Tatje and Hsu 1969; Pobee 1976; Arhin 1994; Lee and Vaughn 2008; Nassau 1903; Parker 2006; Gable 1996), as this study is concerned with the Great Lakes region the only relevant belief is in the magnanimous ancestral spirits. While widely venerated throughout the region, these spirits are considered solely influential within independent lineage groups.

More important for the archaeology of the Sesse Islands is a category of spirits called *'lubaale',* which were venerated at temples and shrines throughout the archipelago. *Lubaale* spirits transcend the human sphere and are instead related to key characters in the Great Lakes cosmologies, often possessing the ability to command natural phenomena and major events such as lightning, earthquakes, rain, warfare, smallpox, etc. (Beattie and Middleton, 1969). The *Lubaale* spirits stemmed from a preceding category of '*Bacwezi'* spirits, which served the same purpose but were fewer in number and venerated over a wider area of the Great Lakes region. Activities associated with these *Bacwezi* spirits were collectively called the '*Cwezi-Kubandwa'* cult throughout the Western Lacustrine Bantu region.

The *Cwezi-Kubandwa* tradition is thought to have originated in the fourteenth or fifteenth century AD, when it replaced the importance of family ancestors with territorial spirits linked to healing and medium-ship, operating with a hierarchy of male and female priests from multiple clans and lineages (Schoenbrun 1998). The *Cwezi-Kubandwa* revolution was a phenomenon linked with the northern region of the Great Lakes area; in the south, specifically Rwanda and Burundi, an identical role was carried out by the '*Ryangombe*' cult. In the nineteenth and twentieth centuries both of these cults had grown (Feierman 1999). Specifically in the south, agricultural populations identified with a figure named *Ryangombe* and used the associated cult to form an opposition to the incoming pastoral rule from the north (Schoenbrun 1998; Feierman 1999). There is a tradition throughout the Great Lakes region of using spiritual cults as a form of resistance and power to political oppression and despotic rule, which was most widely observed in the history of the Bacwezi spirits and associated Cwezi-Kubandwa traditions (Robertshaw 1994; Berger 1980; Schoenbrun 1998; Feierman 1999, 1995; Wrigley 1959).

However the *Bacwezi* spirits were not the mainstay of later religion in Buganda, and they became replaced by the *lubaale* cult when the kingdom was established. This new cult formed the focus of a national ideology (Roscoe 1911). Apolo Kagwa's account of the Baganda records sixty-two *lubaale*, each of which is supposed to have its own temple, priest and medium. Despite the cult having some presence in the mainland, forty-five of the *lubaale* had their temples on the Sesse Islands (Welbourn 1962; Kyewalyanga 1976; Ray 1977; Kasozi 1981; O'Donohue 1997). In Luganda, Lake Victoria is referred to as '*Nnalubaale*', meaning 'place of the *lubaale'*, due to this strong association between the lake and key spiritual figures in Ganda cosmology. According to oral traditions the *lubaale* cult had a longer history of practice in the Sesse Islands, and was introduced to the mainland by Nakibinge, the eighth *Kabaka* of Buganda; "*canoes transported, both in a literal and a metaphorical sense, this complex association of ideas from the Sesse Islands in Lake Victoria to estates on the mainland*" (Kodesh 2007: 543). This is the time at which *lubaale* shrines were constructed throughout Buganda, though the older shrines in the Sesse Islands continued to function (O'Donohue 1997). Interestingly there were around thirty-five kings in Buganda, though they only became distinctly historic rather than mythological after Nakibinge (Atkinson 1975). This suggests that when the historic period began in Buganda, the *lubaale* cult was brought in as a prime element of the kingdom, though with a peripheral origin and base.

Mukasa was the most senior *lubaale* and renowned for health and fertility, with the most direct link to the Sesse Islands of all spirits in the *lubaale* cosmology. According to oral traditions, he was once human and was born to Wanema and Nambubi. The parents lived on Mairwa Island in the Sesses, and also had another son named Kibuuka. As a child Mukasa (who was initially given the name Selwanga by his parents) disappeared, and was later found on Bubembe Island where he was given the name Mukasa, meaning 'from the island of Bukasa', as people assumed this was where he came from. The people of Bubembe were afraid of this mysterious boy, so a hut was constructed for him, and a man named Semagumba was told to look after him. Mukasa would not eat any of the food brought to him, but when someone in the village had killed an ox he asked for the blood, liver and heart. From this strange request, people concluded he was a 'god'. Semagumba became his chief priest, and his temple was a conical reed hut which could only be rebuilt by order of the king. The successive kings then continued to send gifts in numerical denominations of nine (e.g. nine cows, nine goats, etc.) to Mukasa's temple, and later mediums were chosen through possession by Mukasa himself (Roscoe 1911; Wrigley 1959).

It is worth noting here that Mukasa was also recognized as one of the *Bacwezi* spirits in existence before the *lubaale* cult was established. He was sometimes called Mugasha, and considered responsible for healing, rain, food, cattle, children and fishermen on Lake Victoria. His shrine was always located on the Sesse Islands, and he was associated with the kingdom courts of Bunyoro, Kiziba and Karagwe, as well as Buganda (Schoenbrun 1998). In having survived the invention of *lubaale* as an alternative spirit category, Mukasa became key to the political and ritual integrity of the Buganda Kingdom. He has always been represented through a medium, and always associated with fertility, iron, water and fish (Schoenbrun 1998). Clearly certain elements of Ganda cosmologies are important for other communities and possess a greater time depth. This also demonstrates that Lake Victoria and the Sesse Islands were long established as an important spiritual locale long before the *lubaale* were created as an institution.

As the Buganda Kingdom is surrounded by hostile neighbours, its borders were not only enforced militarily and politically, but they were also maintained ritually by the *lubaale* (see Figure 1.4). Kawumpuli (the *lubaale* of plague) had a shrine in the northern Bulemeezi County, protecting Buganda from Bunyoro and Busoga. Kibuuka, the *lubaale* of war, maintained the western border at Mbale in Mawokota County, with a temple located on land that once belonged to Bunyoro. The second *lubaale* of war, Nnende, protected the east from the Busoga Kingdom through his temple at Bukerere in Kyaggwe County. It has been suggested the entire southern portion of the kingdom was protected by Lake Victoria, with Mukasa's chief temple on Bubembe Island (Ray 1991), which would suggest some form of co-operation and interaction between the island populations and the mainland kingdom, whether physical or merely conceptual.

To emphasise this element of interaction between the two populations, the *Kabaka* was expected to periodically offer tribute to all *lubaale*, and to participate in ritual visits to the Sesse Islands (Kagwa 1934; Wrigley 1959). According to oral traditions, at times when Buganda had been at war with the neighbouring Kingdom Bunyoro the reigning *Kabaka* visited the temple of Mukasa to ask for help; however "*The island [Bubembe] at that time was little known, and the journey thither was looked upon as a serious undertaking*" (Roscoe 1911). The *Kabaka* and other aristocrats consulting the spirits were also expected to provide material and financial aid for seasonal rebuilding of major temples in the lake (Roscoe 1911; Kagwa 1934). This provides further evidence of interaction between mainland and island populations, though with a degree of isolation of the islands due to the recorded difficulties of transport. Bubembe Island is located in the more accessible western region of the archipelago closer to the mainland compared to islands further east (see Figure 1.2) and the arduous journey to the western isles referenced here may reflect an even greater aspect of isolation for the islands in the east of the archipelago.

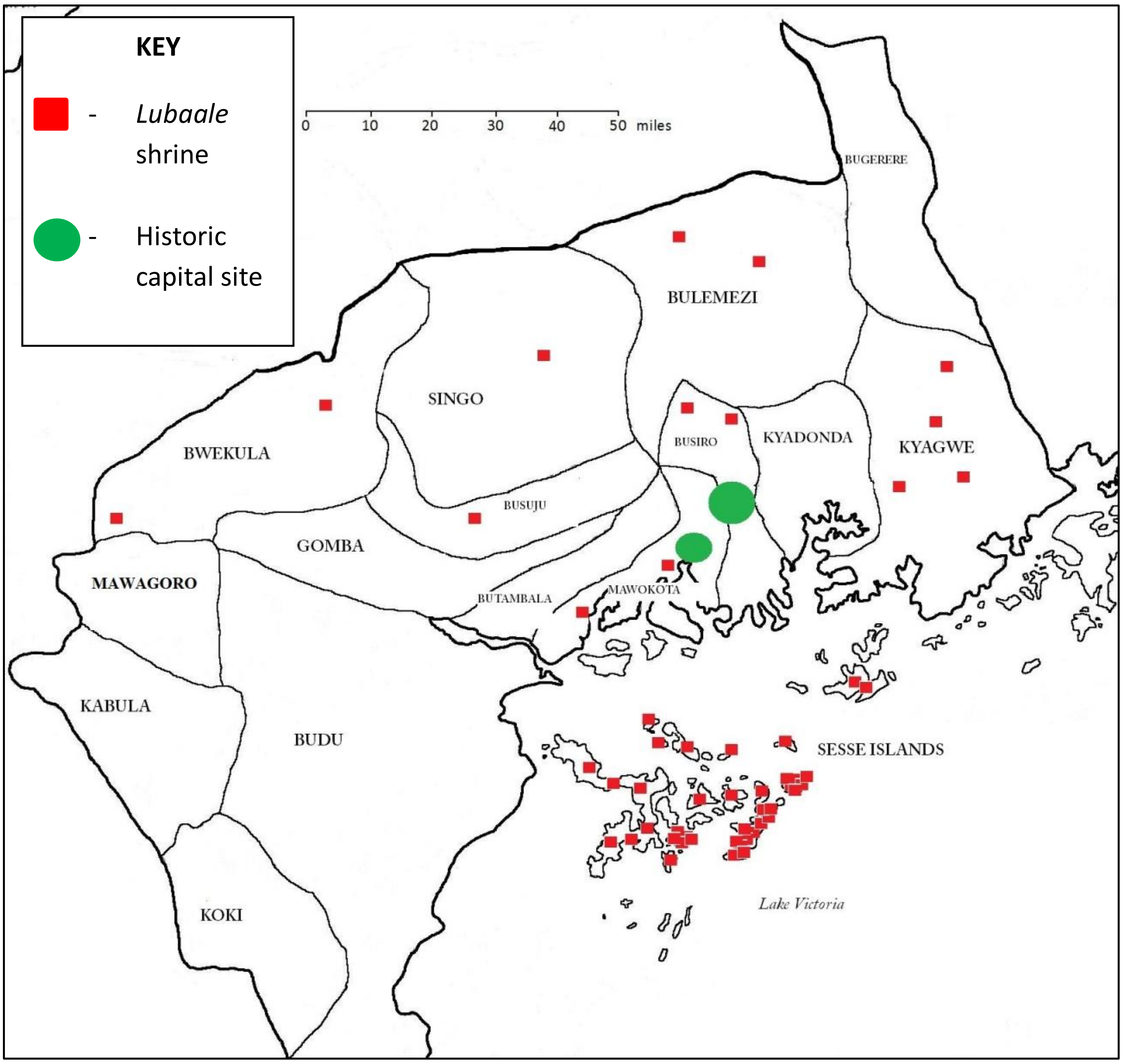


Figure 1. 4: Major shrine locations in the pre-colonial Buganda Kingdom

However other textual information argues for times of a less co-operative interaction between the island populations managing the regional spiritual traditions and the mainland populations managing the politics. Oral testimonies claim that *Kabaka* Kyabagu, who ruled before 1790 when the historic records of kings began, decided to kill priests and medicine-men, and destroy *lubaale* temples. In response Mukasa sent a plague of rats to Buganda, and the king had to pay tribute to the *lubaale* and rebuild their temples to resolve the problem (Roscoe 1911). Similarly *Kabaka* Kamanya, recorded by Kagwa as ruling on the cusp of the historic period in 1790, angered the Mukasa. He was then pressured to placate the *lubaale* by a disillusioned population who wanted to kill him (Roscoe 1911). *Kabaka* Suna II at one point also upset the *lubaale* Kiwanuka by abusing his medium (Roscoe 1911).

While the lake may have served as a boundary to hostile groups attacking the kingdom from the south, the lake was not directly controlled by the Buganda Kingdom. In the eighteenth century the Buganda army developed a fleet of war canoes in an attempt to expand the kingdom via long-distance lake trade routes, and in 1875 Kabaka Mutesa attempted to use this fleet to take control of the Buvuma Islands, close to the northern shore of the lake (Reid 1999). During this period of naval expansion the Buganda Kingdom sought material resources and naval expertise from 'friendly' islands in the lake, emphasising the tumultuous nature of the island and mainland interactions, which may have impacted on trade routes within the north-western sector of the lake. Even after colonisation some of the islands had retained political and cultural autonomy from the mainland kingdom (Reid 1998; 2001; 1982).

Evidently from the earliest available records, the Kabaka had little control over the priests located within the autonomous islands, who had support from the general population. Later the government attempted to draw the *lubaale* spirits into the service of the kingship. In the late seventeenth to nineteenth century, the *Kabaka's* power and strength of the centre were heightened, and the *Kabaka* attempted to become a commander of Ganda cult practices rather than mere guardian. This period was characterized by interaction and fighting between the government and the cult practitioners (Ray 1977; Kasozi 1981; Kodesh 2007, 2010; Hanson 2003). Apparently by the second half of the nineteenth century when Europeans had arrived the cult had been centralized under the *Kabaka*, though this was complicated by the arrival of Islam and Christianity which was adopted as the state religion when Mutesa I (1856-1884) converted to Islam to acquire social power, and declared himself Imam and sovereign over religion. During this time mosques were built around the capital, and the role of *lubaale* in the kingship became severely limited (Ray 1991; Insoll 1997).

This information shows that throughout time from before the recording of history to the present day spiritual beliefs and politics have been intertwined, whether working in harmony or opposing one another. In the light of this constant battle between co-operation and opposition, and references to the difficulty in accessing the Sesse Islands by boat. While it may be difficult to trace evidence of these interactions in the ceramic record, this information on the history of interaction between the island and the mainland populations may aid some interpretation of the ceramics in the absence of other oral or historic data. At times of heightened interaction and co-operation between the mainland and island populations we can suggest that material goods, people, and ideas were able to flow freely between groups. At a very basic interpretative level this may offer explanation of shared ceramic traits between the mainland and island populations. Equally the presence of distinct ceramic traits in the islands may be partially reflective of independent innovation in ceramic manufacturing techniques, which could partially be the result of cultural isolation or a desire to differentiate local ceramics from those of hostile neighbours on the mainland. While these would be very simplistic interpretations of ceramic patterning, these assumptions could form a starting point for a line of enquiry directed towards finding explanations for the ceramic patterning in the Lake Victoria Basin, and should encourage a search for additional information to aid the enquiry, rather than form a conclusive explanation for the patterning.

Based on the ethno-historic data, I conducted a pilot study of the Sesse Islands through my MA fieldwork on '*Belief Systems and Religion in Southern Uganda: Prospects for Uncovering Evidence in the Archaeology*'. The islands were considered especially interesting for the investigation of traditional ritual practices due to Kagwa's lists (1934) of the locations of primary *lubaale* temples. Kagwa recorded which specific islands held concentration of *lubaale* temples (see Figure 1.2), and during my study I consulted local populations as to their knowledge of the locations of traditional shrines, beginning on the largest and most accessible island closest to the mainland, Bugala. I was taken to Bubembe and Bukasa, two islands known by the modern populations to hold major historic shrines with ongoing cult practices being conducted. Despite the problems in using modern oral knowledge to shape investigation on historic situations, it is significant that the most important islands for cult structures listed in the early ethnography are still recognized today as being spiritually significant, and the temple to Mukasa on Bubembe Island is still recognised as the main location of the *lubaale* worship, as recorded in the ethno-historic oral traditions. I was also taken to a very large and important temple on Buwufu Island. Kagwa does not list any shrines on Buwufu; however in an interview the priest informed me that the shrine had recently been moved from Bufumira Island (which is mentioned by Kagwa) as requested by the *lubaale* of the shrine.

Considering the overtly spiritual association of the islands in all ethno-historic and oral accounts from the Great Lakes region, it is necessary to briefly consider archaeological approaches to the study of religions as one paradigm which may become a factor in this research.

1.6 Religion in Archaeology

With the long documented spiritual importance of the Sesse Islands and the interplay between the associated ideologies and management of the pre-colonial Buganda Kingdom recorded in the available oral histories (see section 1.5 above), previous archaeological approaches to the study of religion and materials associated with ritual practice have the potential to direct lines if enquiry in terms of data recovery and in the interpretation of artefacts which may have been used within religious practice.

Under the influence of cultural evolutionary theories in the nineteenth century the discipline of archaeology tended to disregard prehistoric ideology, with religion and beliefs dismissed as epiphenomena serving only to stabilize culture (Pearson 2001; Conrad and Demarest 1984). At this time, when researchers were focussed on utilising objects as indicators of culture, chronology, style and technology, the study of religion in archaeology was limited to the recording of ‘unique antiquities’, with little interest in the associated ritual function or ideology associated with the objects (Malone et al. 2007; Lahiri 2004). When the New Archaeology of the 1960s and 70s brought functionalism to archaeological practice religious beliefs and rituals were interpreted as serving to govern and regulate societies through community belief, acceptance of the social system, and social solidarity (Hodder 1982; Renfrew 1994b).

Although ideology was now being recognized as a mitigating factor in social and state development, it was only considered in a role that legitimized central authority. As they began exploring the notion of ideology in state development, Claessen and Oosten (1996:16) queried “*to what extent can we reconstruct the ideological principles in cultures known archeologically. Can the archaeologist deduce or infer ideological concepts from material remains?*” (Claessen and Oosten 1996:16). Religion independent of studies on state development only became a focus of archaeological practice in the latter half of the twentieth century. However, with an inability to study past religious ideologies directly, emphasis was placed on interpreting the physical markers of religious practices (Bertemes and Biehl 2001). The most successfully applied theories on the archaeology of religion focus on the presence (and archaeological remains) of an explicitly delineated ritual space (Renfrew 1994a; 1994b; 2007a; 2007b). Renfrew's (1985) "*The Archaeology of the Cult*" proposed a 'checklist' of criteria which can be used to determine whether a delineated space was ritual in nature. This list includes: presence of attention focusing devices (using sight, sound smell); rituals performed at a boundary zone between the real and supernatural worlds; characteristic features are found in this liminal zone of ritual observance (e.g. symbols or representation of deity); active participation (typically through offerings); and that some actions are ritually determined. While not all criteria may be present in the practices of all belief systems, this list was intended as highlighting general correlates associated with the practice of 'religion' (Renfrew 1985; 1994b; Ciesielska 2001). Although elements of this list may be present or obvious in ritual spaces of 'World Religions' such as Islamic mosques, Christian churches, and Buddhist and Hindu temples, in the Great Lakes region ritual spaces and structures may not fall into Renfrew's criteria, which attempts to distinguish between sacred and secular spheres. Shrines throughout the region are often built to mimic houses (Amin 2007). Furthermore, based on material culture alone even the structure of a domestic house with simple elements such as a hearth, porch and walls may be viewed through Renfrew's theory as representing a ritual space with the hearth serving to direct attention and the porch and walls delineating a liminal boundary zone, which is given as a feature of ritual sites. Similarly, special cult paraphernalia are expected at ritual sites, yet my own ethnographic research (Amin 2007) on Sesse Island shrines has shown that utilitarian objects such as spears or pots may be later imbued with ritual importance and used in religious contexts, which may be located in natural features such as caves, rock shelters and trees rather than artificially bounded ritual spaces.

Another flaw in Renfrew's theory is that religion is studied as an isolated element of society, rather than being interlinked with other social processes; however it is not just a subsystem or social manifestation but can influence any given aspect of the material culture such as social, economic and political aspects, rather than being isolated to a 'cult' space (Ciesielska 2001; Insoll 2001a; Marcus 2007; Marcus and Flannery 1994). Despite the difficulties in elucidating religious aspects through material culture alone, it is important to remember that the archaeology conducted during this project is taking place in an area well known in ethno-historic texts for its prehistoric ritual practices. From these texts we know that the Sesse Islands were a major location of past religious activity, and that this attracted pilgrims from important members of the adjacent Buganda Kingdom, bringing physical offerings to placate the spirits at temples active throughout the archipelago. Furthermore, the islands are assumed to have religious importance throughout the Great Lakes region for populations beyond Buganda. To disregard a consideration of religion in archaeology and the potential influence of ritual ideologies on the material remains of the Sesse Islands (however difficult to identify) would deny recognition of the spiritual importance of the islands altogether.

1.7 The Organisation of this Thesis

This introductory chapter has laid out the intentions of this study and the background to its key interpretive elements ('island archaeology' and the politico-religious context of the Sesse Islands). This chapter has also highlighted a maintained independence of the islands from the over-arching Buganda Kingdom despite phases of co-operation, which may potentially have affected the degrees of social interaction and trade between the mainland kingdom and the island populations. This in turn may have impacted the material production within the islands, as a bounded environment surrounded by socially distinct mainland entities, with materials (such as ceramics) either designed through independent innovation or influenced by trade from the mainland. The important role of the islands in the ritual practices of relevance beyond the Buganda Kingdom may again have influenced social development and the scale of long distance interactions within the Sesses, and this in turn could affect the range of ceramics present within the islands. As the thesis progresses I will demonstrate how the ceramic record can be used to highlight either a shared material culture within the islands and between the islands and the mainland, or distinct differences.

The following chapter will begin by reviewing the current archaeological knowledge of the Lake Victoria Basin, with a focus on the ceramic typologies in the Great Lakes region as they have been refined by Ashley's (2005) research. Chapter three goes on to critique these previous approaches to the study of Great Lakes ceramics in light of two competing ceramic analysis methodologies: type-variety and the attribute-based method. From this, a new attribute-based method of ceramic analysis is proposed, which has not yet been employed in Great Lakes archaeology. Chapter four provides a detailed fieldwork methodology for the acquisition of primary ceramic data, and considers where to conduct the research as well as data collection strategies within the catchment area. Chapter five provides a breakdown of the survey results from each of the three fieldwork islands in succession (Bubembe, Bukasa and Bubeke). For each, a synopsis is provided for the surface sites and material recorded, and justification made for choices of sites for sub-surface test pit investigations. This chapter also highlights unique surface sites and interesting finds, as well as environmental issues encountered during survey.

A detailed analysis of the surface data ensues in chapter six, providing an interpretation of spatial patterning in the archaeology of the Sesse Islands. The excavated ceramics are then analysed in detail and compared at a general level to the surface assemblages derived from the islands. The chapter finishes with an examination of the temporal patterning observed in the sub-surface archaeology, with a proposed seriation of ceramic attributes. Chapter seven further extends analysis to the comparative collections derived from past research conducted by scholars in the region. Following initial analysis these collections are examined alongside the new fieldwork assemblage to offer recognition of broader ceramic patterning in the Great Lakes region. Chapter eight discusses these analyses in the context of the overarching themes pervading this study as laid out in this introduction, as well as debating the continued use of typological approaches, the further potential of continuing with the attribute-based method of analysis throughout the region, and the wider interpretive implications of such a change. The outcome is summarised in Chapter 9 with proposals for future research in the Great Lakes region.

Chapter 2: History of Archaeological Practice in the Great Lakes Region

To the present day, research in the Great Lakes region has been sporadic and unevenly distributed, with a notable lack in the Sesse Islands. Although some ceramic work has been carried out on coastal sites and on Bugala Island within the Sesse archipelago, much of this previous research remains unpublished. Ashley (2005) offered a re-analysis of the ceramic sequences for the region, and modified the pre-existing typologies to accommodate new data. I have collated this data as an integral element in analysing patterns in the material culture of the Sesse Islands and the entire lakescape, and here present the key tenets of the ceramic history of the Lake Victoria Basin as it is currently known, followed by an account of the ceramic data from individual sites in the Lake Victoria Basin. Aside from my new fieldwork survey and test excavations conducted on the Sesse Islands from 2010-2011, I subsequently returned in 2012 to examine fourteen of these previously researched sites under my own methods of ceramic analysis.

Initially a comment must be made on the temporal divisions used in reference to the pre-historic periods recorded in the Great Lakes region. The most commonly employed terms are 'Late Stone Age', 'Early Iron Age', and Late Iron Age'. However, for almost a century scholars have been arguing over the application of such western (European) nomenclature to African archaeology. Early twentieth century writers divided the African past into the 'pre-historic' and 'historic periods' (see Caton-Thompson 1931); however, in French archaeology (dominant in West Africa) '*la Préhistoire*' is used to denote the period before *any* writing was invented worldwide, whereas in English archaeology (practiced in East Africa) pre-historic implies the period of time prior to the specific introduction of writing in the place under analysis (Sinclair et al. 1993). The term 'proto-historic' had been used prior to 1955 to denote the time period between 'pre-historic', when the society in question has not featured in any literary sources, and the 'historic' period in which internal sources are being generated (Shaw 1989). During the proto-historic, the society has been mentioned in written sources generated elsewhere by visitors prior to creation of the indigenous written sources. However, the use of 'pre-historic', 'proto-historic' and 'historic' are often argued against as they simply imply a state of knowledge, and other time divisions which do not make direct reference to the appearance of historic literature are thought to be more useful in the archaeology of Africa (Shaw 1966; 1989; Calvocoressi 1967). While 'proto-historic' has not been applied to archaeological records of the Great Lakes region itself, and the term 'pre-historic' is upheld as a case specific term referring to archaeology of the time period before any writings making reference to the Great Lakes region were recorded. Elsewhere in the continent the term 'proto-historic' has a continued application outside the archaeological sphere (e.g. van Binsbergen 2012).

The 'Stone Age' and 'Iron Age' divisions in Africa's past borrow their nomenclature from Thomsen's 200 year old 'Three Age System' (Thomsen 1836), minus the intermediary 'Bronze Age', which has led some scholars to propose the more technologically encompassing term 'Metal Age' over 'Iron Age', as multiple metals were being worked contemporaneously alongside iron (e.g. gold and copper) (Goodwin 1952; Mason 1952; Connah 2004). As early as the 1920s, scholars recognised the problems of applying European terminology to the African record, with 'Early Stone Age', 'Middle Stone Age' and 'Late Stone Age' proposed as a sub-Saharan alternative to the European 'Lower', 'Middle' and 'Upper' Palaeolithic ('epipalaeolithic' was maintained as relevant in north African archaeology) (Shaw 1981; Goodwin and van Riet Lowe 1929; Magan 1955; McBrearty 1988).

This proposal by Goodwin focussed attention on addressing the use of European nomenclature in African archaeology at the third (Pan)African congress on Prehistory held in Livingstone in 1955, and from this stemmed the Burg Wartenstein Symposium in 1965. Prime focus was given to terminology applied to the African Stone Ages and the use of the term 'Neolithic' (Sinclair et al. 1993; Shaw 1966; 1967; McBrearty 1988; Clark et al. 1966; de Maret 1990), with a (later) criticised lack of focus on 'Iron Age' terminology (Calvocoressi 1967; Shaw 1967). The results of these deliberations was to spark a flurry of alternative proposals for nomenclature more suitable to the African context, which led to further discrepancies; suggestions were made to employ the terms referring to an 'industrial complex' and 'cultural stratigraphic units' (Sinclair et al. 1993; Shaw 1966; Clark et al. 1966). However critics highlighted the problem of discussing sites in terms of an 'industrial complex' as ignoring the multiple industries of post-Stone Age communities (e.g. iron, pottery, stone, etc.) with a focus on outdated artefact typology (e.g. 'Acheulian Industrial Complex) (Calvocoressi 1967; Connah 1967).

While most attention was paid to resolving the use of the term 'Neolithic' (see Shaw 1966; 1967; 1981; Sinclair et al 1993; Sutton 1973; Phillipson 1993; Bower 1976; Davies 1967; Kiriama 1993; Collett and Robertshaw 1983), no resolution has been reached in attempts to standardise this term in its use across the continent. However applications of the term 'Neolithic' do not feature in the current archaeology of the Great Lakes region, which is the focus of the present study. Here it would be more appropriate to consider the 'Iron Age' nomenclature. Generally throughout Africa the term 'Iron Age' is assigned to any chronological period associated with the use and/or the knowledge of iron technology (Kense and Okoro 1993), and tends to be divided into an early and late phase, with no intermediate. Following Kense (1983), Augustin Holl proposes that "*an iron age society can best be considered as one which has a working knowledge of iron technology and has integrated that technology within the various aspects of its social structure"*, calling for differentiations to be made between 'iron-using' and 'iron-producing' communities (Holl 1993:330). Calvocoressi (1967) argues that this distinction between iron-using and iron-producing is moot, and other authors advocate for regional-specific definitions. Mason (1952) defines the 'South African Iron Age' as "*the period subsequent to the introduction of iron working, but prior to the appearance of European metal artefacts within the area defined*" (Mason 1952:70), with a recognition that the chronological separation of the Stone and Iron Ages varies on a site to site basis with much evidence of overlap between use of the two technologies. Other scholars have proposed alternate terms such as 'Early Iron Age Industrial Complex', 'Early and Late Farming Communities', or simply 'Stone', 'Stone to Metal' and 'Metal' ages (Phillipson 1977; Soper 1971a; 1971b), or simply removing the terms from use, in accordance with suggestions from the Burg Wartenstein Symposium (Phillipson 1985; McBrearty 1988).

In the case of the Great Lakes region, I advocate the use of the terms 'Early Iron Age' and 'Late Iron Age'. Contrary to old criticisms by Goodwin (1952), I do not believe the use of the term 'Iron Age' implies a preceding 'Bronze Age', as in East Africa both terms 'EIA' and 'LIA' have an established longevity of use which recognises that no

'Bronze Age' existed. Furthermore, due to this longevity of use in popular writing and the problems arising in translating alternate cultural-specific terms to other archaeologists unfamiliar with the region at hand, the EIA and LIA nomenclature will be upheld. Daniels (1967) argues that the need for more 'archaeologically valid' idioms only applies to the Stone Age, as Iron Age archaeology tends to be multidisciplinary, allowing for supposedly 'non-archaeological' terms such as 'Iron Age'. I agree with both this statement and Calvocoressi's earlier comment that distinctions do not need to be made between 'iron-using' and 'iron-producing' specifically in the Great Lakes region, as evidence for iron production itself is often scant due to a dearth of research in many areas, such as the total lack of evidence for iron production at Ugandan EIA lake basin sites, or the removal of the production from areas of human settlement for spiritual reasons which may result in their perceived absence from the archaeological record, as evidenced elsewhere in East Africa (e.g. Tanzania and Rwanda) (Barndon 2004; 2012; Mkandawire 1978; Mapunda 2011a; 2011b; Schmidt 2009; Ashley 2005). Currently throughout the Lake Victoria Basin, ceramics are utilised as a chronological indicator for archaeological assemblages, with the first appearance of ceramics in the Late Stone Age, and widespread use beginning in the Early Iron Age. Up till now, EIA status has been typologically applied to sites within the region based on ceramics rather than presence of the smelting technology itself.

Therefore, working with a recognition that terms such as 'Iron Age' may conflate temporal periods with material culture attributes, at the broadest level it is difficult to avoid the use of the descriptors Late Stone Age (LSA), Early Iron Age (EIA) and Late Iron Age (LIA) when referring to past research. Thus they are maintained here until a more adequate understanding of the regional history can be grasped. With this knowledge we can now examine the ceramic traits taken as indicative of the different chronological periods in Great Lakes East Africa.

2.1 Late Stone Age Archaeology and Ceramics in the Great Lakes Region

Archaeological remains in the Lake Victoria Basin date back to the Middle Stone Age, though these remains are not widespread and largely isolated to Lolui Island in the Bugiri District of Uganda, within the eastern portion of the lake. The island was surveyed and excavated by Posnansky in 1964 and 1965, and later revisited by Reid and Ashley (Posnansky 1967; Posnansky et al. 2005; Ashley 2005). The archaeological evidence recorded for a Late Stone Age occupation includes rock paintings and rock gongs, piled rock cairns and upright stone lines, and previously buried artefacts exposed in erosional gulleys. Tools were constructed from local sources and from volcanic raw materials derived from the mainland (Posnansky et al. 2005; Posnansky 1961c; Jackson et al. 1965; Chaplin 1966; 1974). With no evidence for any other human activity until the appearance of 'Early Iron Age' pottery, it may be that the geographically isolated island was once connected with the mainland by past land bridge; the relative lack of Late Stone Age material is thus possibly due to rising lake levels during wetter conditions insularising Lolui, with an absence of maritime technology making it impossible to repopulate Lolui until the EIA. Kendall's research on the historic levels of Lake Victoria suggests the lake was relatively shallow from 14,500 – 10,000 b.p., followed by a period of aridity in 10,000 b.p. and a return to wetter conditions around 6,000 b.p. (recounted in Robertshaw et al. 1983); this may be the point at which Lolui became isolated from human occupation.

Other aceramic Middle Stone Age remains have been recorded within the Buvuma Island group close to the northern shores of Lake Victoria, which includes the islands of Buvuma, Bugaia, Bukwaya, Bwema and Kibibi. In 1967 an initial expedition was sent to survey the islands, and in 1968 a Belgian archaeological team arrives to excavate sites in the south of Bugaia and Buvuma Islands. Twelve new sites were recorded on Bugaia and forty on Buvuma (McFarlane 1967; ARMSY 1969; Nenquin 1971). The sites recorded on Buvuma Island were mostly located in caves and assemblages yielded MSA and LSA artefacts constructed from quartz, with deposits dated from 15,000 – 10,000 b.p. (ARMSY 1969; Nenquin 1971; Phillipson 1977; 1993; Posnansky et al. 2005). Field systems were also recorded on the hilltops and slopes of the islands with boundaries constructed from lateritic gravel, implying that agriculture was extensively practiced at Stone Age sites in the Buvuma group. These field boundaries are notably different in style to the chronologically comparable examples from Lolui (McFarlane 1967). Three distinct phases of agriculture are apparent throughout the history of the Buvuma Islands; the earliest, characterised by lateritic gravel banks, was practiced on hilltops. Later intensive terrace cultivation took place on the steep slopes of the islands, and this was eventually replaced by the modern form of banana cultivation on lower pediments. This pattern of agricultural development is remarked upon as unique to the islands and absent from the mainland records (McFarlane 1967).

As with the presence of mainland raw materials on Lolui Island, some stone tools recovered from the Buvuma group mirror examples from the mainland, suggesting either a knowledge of aquatic transport or lower lake levels exposing land bridges (McFarlane 1967). In the case of the Buvuma group arguments are made for the presence of rudimentary aquatic transport as early as 15,000 b.p., due to the dates at which the lake levels began to decline occurring later than the appearance of stone tool technologies in the islands (Beuning et al. 1997). This information provides early evidence for interaction and trade between the lacustrine islands and the coastal zones, in a time when aquatic transport may have been unrefined. Furthermore, the differences between Stone Age field boundaries on Lolui and Buvuma despite the same lateritic soils characterising both islands (Jackson and Gartlan 1965), and the differences in agricultural development between Buvuma and the mainland sites despite relative proximity, may provide evidence for island-specific idiosyncrasies and independent socio-cultural development.

The LSA sites are characterised by bipolar cores, small-backed microliths, thumbnail scrapers and burins. There was a continuous sequence of LSA occupation in the Lake Victoria Basin from 8,000 b.p. to the EIA (Ambrose 1982). Pottery technologies emerged as part of the LSA package of material culture with the inception of 'Kansyore' ceramics, the presence of which is considered indicative of the end of the Late Stone Age (Ambrose 1982; Karega-Munene 2003). The distribution of Kansyore ceramics is restricted to the eastern and southern sides of Lake Victoria and north-central Tanzania (Phillipson 1997; 1993; Posnansky 1967; Karega-Munene 2003; Prendergast 2010).

This ceramic tradition is named after the type-site on Kansyore Island, located in the Kagera River of south western Uganda, close to the Tanzanian border. Excavations on the island recorded Kansyore Ware directly below the EIA Urewe ceramics, with Kansyore vessels characterised by poorly constructed simple bowls with tapered rims and a gritty surface texture, comb-stamping decoration in a variety of motifs, zigzag hatched incisions, round shallow grooves, stab and drag grooves, and parallel impressed lines. The ceramics are produced by the coiling method, evidenced by frequent breaks along the manufacturing coils (Phillipson 1977; Posnansky 1967; Karega-Munene 2003; Chapman 1967). On Kansyore Island these early ceramics are presumed to have been made by hunter-gatherers predating the EIA Urewe ceramic producers (Phillipson 1977), though this supposition is wholly based on an assumption that the introduction of iron technology in one part of the region eradicated the presence of hunter-gatherer societies elsewhere in the region (and that iron producers were necessarily agricultural). Nsongezi rock shelter, also located on the Kagera River, produced lithic evidence to also place it in the LSA, though with an absence of any pre-EIA ceramics (Cole 1967; Phillipson 1977; Nelson and Posnansky 1970; Pearce and Posnansky 1963).

More extensive work on Kansyore using/producing societies has been conducted at sites to the east of Lake Victoria, with earlier research suggesting Kansyore users produced microlithic tools and practiced a fishing, hunting and gathering lifestyle close to the lake and adjacent riverine locations. Decorative techniques applied to the pottery here were characterised by comb stamping in a variety of motifs, rocker stamping, stab and drag decorations, and fingernail impressions, recovered on 'medium-sized hemispherical bowls' (Robertshaw 1991a; Collett and Robertshaw 1980; Mosley and Davidson 1992; Thorp 1992; Karega-Munene 1993). Problematically the early Kansyore evidence was predominated by fragmentary and sparse collections with insufficiently detailed records and illustrations for comparative purposes (see Soper and Golden 1969; Brachi 1960; Leakey 1931; Gabel 1969), and Robertshaw and Collett (1980) recognised a tendency for other ceramics to be misdiagnosed as 'Kansyore' at sites further from the lake (see Gramly 1975; Bower and Nelson 1978; Bower 1973).

Despite a distance of 525km (by land) between Kansyore Island and the eastern lakeshore sites, and dated contexts for the ceramics originating solely from these two geographically disparate areas, Kansyore had been accepted as appearing in the regional ceramic typologies from 8,000 – 2,400 b.p. with the assumption that the producers of the ceramic operated under the same socio-economic structure on both sides of the lake. More recent research on the eastern shores of the lake has sought to address this perceived homogeneity by examining temporal change in the Kansyore using societies, with the earliest dated Kansyore site now yielding a reading of 7819 – 6590 BC at Luanda, and the youngest (Mumba) producing a date of AD 28-355. This new research identified three phases of Kansyore occupation within East Africa, beginning with 'hunter-fisher-gatherer' communities and ending with a limited rearing of domestic animals (Dale 2000; 2007; Dale et al. 2004; Lane et al. 2006; 2007; Prendergast 2008; Prendergast and Lane 2008; Prendergast et al. 2007; Ashley 2005; Dale and Ashley 2010).

A significantly greater research effort has been put into understanding the later 'Urewe' ceramics, which occurred over a wider area and in much higher quantities than the Kansyore (Phillipson 1977; 1993; Posnansky 1967; Karega-Munene 2003; Prendergast 2010).

2.2 'Urewe' Ceramics and related Early Iron Age Archaeology from the Great Lakes Region

Radiocarbon dates place 'Urewe Ware', which was initially identified in Western Kenya in 1948, into a bracket of 500 BC – AD 800 (Ashley 2010), with archaeometallurgical associations in Tanzania, Rwanda and Burundi positioning it into the Early Iron Age occupational periods of the region, though there is a lack of technological evidence for EIA smelting in Uganda and Kenya. This gives two distinct types of sites emerging in the EIA of East Africa: purely domestic settlements, and sites with iron production. (Ashley 2005; Ambrose 1982; Stewart 1993; Phillipson 1977; MacLean 1996). However ceramics alone in the absence of iron smelting evidence or habitations are accepted as the indicator of domestic sites, as only four EIA living floors have been identified throughout the region (MacLean 1996; Ashley 2005). Ecological associations of the EIA sites throughout the Interlacustrine region associate the Urewe sites with well-defined geographic distributions in fertile, well-watered regions suitable to cultivation such as the shores of Lake Victoria and river basins in northern-western Tanzania, south-western Kenya and southern Uganda, and the forested highlands of Rwanda, Burundi, and the Eastern DRC. This distribution follows the patterning of LSA sites, suggesting continuity in occupation (Phillipson 1993; Posnansky 1967; MacLean 1996; Stewart 1993; Ashley 2005; Reid 1996; Reid 1994/5). The predilection for settling in fertile regions with a high annual rainfall compared to an absence of EIA sites in the drier grasslands has been used to infer that Urewe users were cultivators, though direct association with agriculture is generally lacking except on Lolui Island where the ceramic is found associated with iron tools, grindstones and field systems. Alternatively, it could be observed that the choice of location close to densely vegetated and aquatic areas suggests the populations placed themselves in areas where wild fauna could have been opportunistically exploited to supplement the domestic economy if need be (Stewart 1993; Posnansky 1967; Reid 1996).

The most concentrated evidence for EIA iron working comes from Butare in Rwanda and Buhaya in north-western Tanzania on the southern shores of Lake Victoria. Buhaya exhibited extensive settlement and iron smelting dated to the beginning of the Christian Era. Supporting evidence from datable pollen sediments in Lake Victoria records a vast reduction in forest vegetation in the middle of the last millennium BC; this could be climatic, or may correlate with large scale charcoal production for iron-smelting, or land clearance for agriculture (which would be more feasible on a large scale with the presence of iron tools (Schmidt and Childs 1985; Schmidt 1980; 1997; 2009; Schmidt and Mapunda 1997). The aforementioned absence of EIA smelting sites in Uganda and Kenya may reflect on an uneven distribution of iron smelting in the Great Lakes EIA, rather than a simple lack of discovery of such sites (Phillipson 1997; 1993; MacLean 1996; Ashley 2005). Considering these pockets of intense iron production during the EIA, and the use of iron tools in areas where no iron smelting was carried out, there was either a trade network between the iron-producing and iron-using communities, or archaeologists have yet to uncover further evidence for EIA smelting throughout the region.

Urewe ware was first identified by L. Leakey in western Kenya, where it was recorded as 'dimple-based ware' (Leakey et al. 1948). This early recording and interpretation of the ceramics was dominated by descriptive terminology until the 1960s. Morphologically, the ceramic was distinguished by a dimple in the base of the pot, with bevelled rims, and typical decorations created from neat stylus incisions which are frequently cross-hatched (Posnansky 1967; see Ashley 2010: 143 for illustrations). Based upon the concerns regarding terminology raised by the Burg Wartenstein symposium, Posnansky proposed renaming the 'dimple-based' ceramics as 'Urewe Ware', to remove the assumption that having a dimple in the base was a pre-requisite to fit the type (Posnansky 1973). In her re-evaluation of the earlier ceramic chronologies for the region, Ashley also includes a 60:40 ratio of jars to bowls as a characteristic feature of Urewe assemblages, a trait which was initially identified by Van Grunderbeek (1983) in the Rwanda and Burundi Urewe ceramics (Ashley 2010). Further Urewe features recorded by other researchers include assemblages characterised by 'necked vessels' (jars), and shallow bowls (as opposed to closed bowls). These necked vessels exhibit thickened rims, fluted lips, and incised stylus decoration on what is referred to as the 'rim-band', or the neck portion of the rim. Other elaborate grooved stylus designs are recorded on or near the shoulder in a variety of 'pendant loops', triangles, concentric circles and other motifs. The bowls feature horizontal incisions below the rim, sometimes with bands passing under the base (Phillipson 1977; Ambrose 1982).

The first, and for a long time the only, dated EIA context associated with ceramics in the Great Lakes region came from Nsongezi in 1962, with a radiocarbon determinate of the Urewe rich layer placing it at AD 1025 ±150 (Posnansky 1967; Ashley 2005). Due to the AD 250 and AD 300 dates resulting from later research on Urewe sites, and the presence of iron smelting from 550BC, the Nsongezi date was assumed to provide a *terminus ante quem* of AD 1025, and the iron smelting evidence taken as the date of origin of the ceramic, giving the widely accepted chronological determinants of Urewe Ware (Ashley 2005). Therefore, based on descriptive accounts of Urewe ceramics, the presence of Urewe at some EIA smelting sites, the dating of EIA smelting sites (sometimes without Urewe Ware) from 550 BC, and the dating of Urewe excavation layers up to AD 1025, the EIA in the Great Lakes region has been dated from 500 BC – AD 1000, and recognised by the presence of Urewe ware and/or early metal-working remains (Ashley 2005; 2010).

The end of the EIA is marked simply by a decorative shift in the ceramic record from Urewe techniques (stylus incisions, bevelled rims and dimpled bases) to roulette decorative designs (Stewart 1993). To exemplify this, Posnansky records EIA sites in Uganda from the following information: a dimple base and bevelled rim at Mwiri Hill, Busoga; a body sherd with channelling, cross-hatching, loops and dots from Nabigereka Rock Shelter in Mubende District; one dimple base, sherds with scrolls and channelling, and bevelled rims from Waiya Bay, Entebbe; channelling decoration and bevelled rims at Buloba Hill near Kampala, channelling and a dimple base at Hippo Bay Cave rock shelter; and some cross hatched pottery at Jinja Golf course (Posnansky 1961b). Evidently the pre-occupation with identifying a ceramic typology for the region has led to simplistic assumptions that the presence of a handful or even a single sherd with Urewe characteristics is sufficient to lend an entire site an EIA date.

Later ceramic analysis on Bugala Island in the Sesse archipelago by Ashley (2005) identified Entebezamikusa as producing the earliest date for Urewe ware in the Great Lakes region outside of Buhaya, Rwanda, and Burundi, indicating that Urewe users possessed the maritime technology to travel between the lakeshore and Bugala Island, and further afield to Lolui Island were EIA ceramics have also famously been recovered in large quantities. Furthermore, Ashley's interpretations indicate that Urewe populations were not confined to agricultural land as previously assumed, but instead operated a range of economic pursuits which also included fishing as well as farming, and exploitation of both wild and domestic resources, indicating heterogeneous and adaptable societies throughout the EIA. Despite this perceived heterogeneity in socio-economic pursuits, EIA studies still assume a homogeneity of ceramic manufacturing techniques across the wide geographic span of the Lake Victoria Basin.

Originally the ceramic sequence for the area abruptly moved from the 'Early Iron Age' to the 'Late Iron Age' at the introduction of roulette decorated ceramics. The emergence of these ceramics in East Africa was thought to be part of an overall change in settlement distribution to the drier grasslands, economic orientation towards pastoralism rather than agriculture, and part of a material culture which heralded the rise of the Great Lakes Kingdoms and subsequently the association between roulette ceramics and statehood (Phillipson 1977; 1993; Ambrose 1982; Ashley and Reid 2008; Reid 1994/5; Phillipson 1977; 1993; Posnansky 1961a; Robertshaw and Kamuhangire 1996). However Ashley's re-analysis of the ceramic data in light of new evidence identified the emergence of a new ceramic at the putative EIA/LIA juncture, c. AD 800 - 1100, which she called the 'Transitional Period', based on the evidence of 'Transitional Urewe' ceramics (Ashley 2005; Ashley 2010).

2.3 'Transitional' Ceramics and Associated Archaeology

The 'Transitional Period' between the EIA and LIA gave rise to several new types of ceramics. One group, referred to as 'Transitional Urewe' ceramics, are described as superficially resembling Urewe though with a simplification in the range of vessel types, with 'less refined' forming techniques and incised decorations (Ashley 2010). There is very little non-ceramic evidence from this 'Transitional' period, and there is an uneven distribution of the 'Transitional' ceramics around the Lake Basin. Transitional ceramics are absent on the eastern lakeshore in Kenya, and instead limited to the western lake basin. Settlements follow a predilection for low-lying fertile areas, though with a greater preference for specifically lacustrine locales than the earlier Urewe users. A number of different micro-variations in Transitional Urewe ceramic styles are recorded by Ashley on Bugala Island and named after their type sites, with 'Lutoboka' and 'Sozi' ceramics identified as having specific lake-settlement associations (Ashley 2005).

'Devolved Urewe' and 'Sanzi' ceramics also emerged during this 9th and 10th century 'Transitional' period with associations to lacustrine settlements, all of which suggests a fluorescence in ceramic production in the Lake Victoria Basin during this phase. Ashley records the decline in quality from earlier Urewe ceramics with a reduced range of variation as distinguishing features, which she interprets as a diminution in social role, decrease in specificity of function, and the use of generic forms (e.g. hemispherical bowls) for multiple purposes. A maintained presence of jars in the Devolved Urewe and Sanzi repertoire is presumed indicative of a continuing large scale use of liquids, and a maintenance of 'familial or near kin' sized vessels is taken as indicative of small unit consumption in the Devolved Urewe and Sanzi communities (Ashley 2005). All references to size classes in Ashley's work stem from Henrickson and McDonald's (1983) ethnographic study on ceramics. From an analysis of their work, vessels with an average diameter of 18-19cm are referred to by Ashley as suitable for 'familial or near kin' group size consumption practices.

The appearance of a very different type of ceramic named 'Entebbe Ware' was dated to the end of this Transitional Period, and the ware is believed to continue to exist well into the 2nd Millennium AD. Entebbe Ceramics were initially identified and named by M. Posnansky at Hippo Bay Cave on the Entebbe peninsula, described by Brachi (1960), and later re-analysed by Ashley (see Ashley 2010:155 for illustrations). The forty-three known Entebbe sites recorded by Ashley all lay within eight kilometres of the lakeshore. The very distinctive vessel form is characterised by 'large spherical or hemispherical bowls' with incurving bodies and in-turned, rolled over or carinated rims which tend to be bulbously thickened (Posnansky 1961a; 1967; Ashley 2005). Based on Ashley's size categories, in comparison to the earlier Urewe ceramics Entebbe vessels are distinguished as 'large' or 'very large'; however, Entebbe vessels are recorded with a range of diameters from 18 – 40cm (Ashley 2010) which overlaps with the sizes of the 'smaller' Urewe vessels (with an average diameter of 18-19cm), emphasising how subjective 'large' and 'familial or near kin' are as definitions of size. 'Spherical' and 'hemispherical' are frequently used to describe the shape of vessels in East African ceramics; 'spherical' refers to closed bowls, and 'hemispherical' denotes a straight – sided bowl with a roughly semi-circular wall profile in cross-section. The decoration on Entebbe vessels is primarily applied with a 'twisted string roulette' (TGR) decoration on the lip and upper exterior in a herring-bone pattern, with a scored parallel or wavy comb grooving on the interior (Posnansky 1961a; Brachi 1960; Ashley 2010).

Evidently localised ceramic manufacturing traditions became established within the lake basin during this Transitional period, which may be reflective of an increase in interaction between the islands themselves and between the islands and the mainland, with individual communities either directly intending to express group identify in emerging markets, or previously isolated production styles becoming widespread unintentionally through new trade and interaction. However little focus has been placed on these Transitional ceramics, except for a recognition that they exist as a stepping stone between refined and neatly executed incised Urewe Ware from the EIA, and coarse roulette decorated pottery from the LIA.

2.4 Late Iron Age Ceramics and Associated Archaeology

The Late Iron Age, dated to the second millennium AD in the Great Lakes region, has been subject to intensive archaeological investigations. The LIA was a period of change in settlement distribution, economic orientation and material culture from the EIA, which heralded the rise of the Great Lakes Kingdoms (Phillipson 1977; 1993; Ambrose 1982; Ashley and Reid 2008). In ceramic typologies, the refined Urewe and cruder Transitional Urewe ware was replaced by larger, coarser ceramics decorated with fibre or wooden roulettes to produce uniform patterning. The new rouletted ceramics were present throughout the region, with their appearance in western Uganda dated from the 10th Century AD at Munsa, and the eleventh to twelfth centuries elsewhere (Robertshaw 1997; 2001; Robertshaw et al. 1997; Desmedt 1991; Soper and Golden 1969; Reid 1994/5; Posnansky 1961a; 1967; Robertshaw and Kamuhangire 1996; Ashley and Reid 2008). The distribution of the new roulette ceramics indicates a preference to settle in the drier grasslands which characterise the west of Uganda. This shift to the grasslands as opposed to settlement in regions suited to farming facilitated a change to economic strategies dominated by pastoralism (Ashley and Reid 2008; Reid 1994/5). From the eleventh to fifteenth centuries AD dense, widespread communities developed with evidence for socio-political inequality and hierarchy, and from this a link has been made between roulette ceramics and the advent of statehood (Ashley and Reid 2008). Thus LIA archaeology in Uganda focussed on the historical kingdoms (or antecedents) of Buganda, Bunyoro and Nkore, and their presumed capital sites (Bigo, Ntusi, and Bweyorere). These roulette-using state societies centred on the Mawogola region of Uganda, with occupation beginning from the 10th Century AD and peaking around the 13th to 14th centuries AD (Robertshaw 1997; 2001; Robertshaw et al. 1997; Reid 1994/5; Phillipson 1977; 1993; Posnansky 1961a; Robertshaw and Kamuhangire 1996).

Despite the extensive focus on LIA archaeology in the Interlacustrine region, little attention has been paid to the classification of roulette decorations (Stewart 1993). The majority of research avoids real differentiation between different types of roulette, with instead references to what Soper (1985) calls 'dustbin categories', for example: 'cord-rouletted wares' (McMaster 2005); 'plaited roulette' and 'twisted cord roulette' (Soper and Golden 1969); 'rouletting with knotted grass' (Sutton and Roberts 1968; Posnansky and Chaplin 1968); 'plaited roulette' (Wayland et al. 1933); 'string roller' decoration (Posnansky 1961a; 1967); 'cord roulette pottery' (Phillipson 1977; 1993); and a rather confusing decorative category of 'fine rouletted incised lines' (Posnansky and Chaplin 1968). Soper offers the following definition of 'roulette': "*a roulette is a roughly cylindrical object, usually quite small, that is rolled over the surface of wet clay to leave a continuous band of impressions that repeat themselves at each revolution*" (Soper 1985:30). He goes on to offer a criteria for the distinction of different rouletting tools, based on 'unmodified objects' (e.g. maize cob), 'rigid roulettes' (e.g. carved wooden roulettes), 'flexible roulettes' created from soft fibres, and 'composite roulettes' (e.g. featuring both a rigid and flexible element of the tool design). The category of 'flexible roulettes', which are the most common category in the Interlacustrine LIA, is further elaborated into sub-groupings by Soper. Distinctions within the flexible roulettes are based on the cross-sectional profile of the fibre from which the roulette is created, which can either be flat (referred to as 'strip'), or round (referred to as 'string'). Further identification notes the presence of 'knotting' or 'twisting' of the string/strip, producing two major categories of 'Twisted String Roulette' (TGR) and 'Knotted Strip Roulette' (KPR) (Soper 1985). Whilst these two categories of roulette are widely referred to in the Great Lakes region, little effort has been made to further identify modifications in roulette tools.

Chronologically there are observable differences between the appearance of TGR and KPR roulette designs, with previous research indicating an earlier appearance of TGR, followed by KPR, and finally something referred to as 'thin KPR' (Desmedt 1991). As the earliest manifestation of flexible roulettes, TGR decoration were until recently thought to present in the ceramic sequences of Rwanda and Burundi from the 8th century AD, based on radiocarbon dates and research by Van Grunderbeek (et al. 1983) and Van Noten (1983), with a later 10th-12th century AD appearance in Uganda (Robertshaw 1997; 2001; Robertshaw et al. 1997; Desmedt 1991; McMaster 2005;

Connah 1996b; Reid 1996; Posnansky 1961a). However, recent work by John Giblin has re-dated the appearance of TGR in Rwanda to 1028 – 1214 AD (samples OxA-19521 / 19522 / 19523 / 19524 / 19811) (Giblin 2013:516). Such cord roulettes had existed elsewhere in western Africa from the third millennium BC, if not before (see Haour et al. 2010). Munsa is the earliest dated Ugandan site associated with cord-roulette decorated ceramics; radiocarbon determinants place initial occupation associated with these ceramics between AD 781 – 1023 (sample AA-15554; see Robertshaw 1997), and cross-comparison between several radiocarbon, TL and AMS dates from Munsa produce a date of AD 900 – 1200 for inception of the site (Robertshaw 1997; 2001; Robertshaw et al. 1997). However, records do not explicitly define whether the Munsa roulettes are characterised by TGR, KPR, or both decorative techniques, though KPR is recorded as most common (Robertshaw 1997).

Detailed analysis of 'Carved Wooden Roulettes' (CWR) have mostly been ignored in the Interlacustrine region, aside from an initial examination of CWR roulettes at Kibiro by Connah (1996b), where 99 different designs were recorded with stratigraphic associations. David and Vidal (1977) have recorded the distribution of CWR from West Africa to southern Sudan, with presence in the Nok ceramics of Nigeria from the 7th/8th C AD (Soper 1985). However while Soper argues for a much later post 1500 AD appearance in the Interlacustrine region, Connah suggests an earlier second millennium AD presence based on stratigraphy at Kibiro (1996b). At the present time not enough research has been carried out to allow for a classification of Carved Wooden Roulettes in Uganda.

Aside from ceramics, the western grassland sites yielded a wealth of other archaeological information. They were frequently associated with large scale earthworks including ditches, mounds and major earthworks, as recorded at Bigo, Ntusi, Munsa, and Bweyorere (Posnansky 1961a; 1967; ARMSY 1969; Robertshaw 1997; 2001; Robertshaw et al. 1997; Phillipson 1977; 1993; Young and Thompson 1999; Reid 1996; Ashley 2005). Glass beads providing evidence of interaction with the Kenyan east coast trade networks have been recovered in the assemblage from Munsa in contexts dated AD 900 – 1200 (Robertshaw 1997; 2001; Robertshaw et al. 1997), from Ntusi in contexts dated to the 13th Century AD (Reid 1991), and from the undated surface assemblage of Bigo (Wachsmann 1954). The archaeological assemblage from Bweyorere, which was occupied in the 17th/early 18th century, also contained glass beads alongside tobacco pipes which suggested site occupants were engaging in east coast trade networks. The first American crops (including tobacco) spread through East Africa in 1700 (Posnansky 1961a; 1967).

2.5 Summary of the Great Lakes Ceramic Sequence

Based on the previous research to date, the rare occurrences of poorly constructed Kansyore ceramics are an element of some LSA assemblages, though the presence of the ceramic is not a pre-requisite for denoting LSA site status. The appearance of 'Urewe' ceramics, with a narrow definition based upon descriptive features (dimple bases, bevelled rims, neatly incised decoration and a ratio of 60:40 jars to bowls), is taken as exemplary of EIA sites throughout the region in the absence of any other archaeological remains, and presence of this ceramic is used to ascribe a definitive date of 500 BC – AD 1000 to any assemblage containing Urewe ceramics (Ashley 2010), despite only a small number of assemblages having been radiocarbon dated by stratigraphic association. These dates and Early Iron Age technological associations are ascribed to any assemblage within the region containing Urewe sherds, regardless of specific location or number of Urewe sherds in the collection. At the end of the first millennium AD there is a poorly defined appearance of Transitional Ceramics, which are recognised by a perceived devolution from the artisanal Urewe ceramics and associated solely with the islands and the lakeshore. This is followed by the appearance of roulette decorated pottery at sites exhibiting political complexity in the drier grasslands away from the lake basin from the 10th century AD until the historic period, though little comment has been made on the presence of roulette ceramics at the lake shore sites, except for recognition of some specific TGR rouletted design on Entebbe ceramics at the end of the Transitional period.

This thesis is attempting to refute the applicability of this typological sequence which has been defined through a type-variety method of ceramic analysis, primarily through an analysis of new data arising from the Sesse Islands. With this knowledge of the transitions in material culture in the Great Lakes region and the chronological associations from the LSA to the LIA, it is necessary to highlight the archaeological remains from specific sites around the coast and on the islands in Lake Victoria. This data will be important in analysing the nature of trade and interactions between the Sesse Islands and the wider lacustrine environment, and a knowledge of this data is essential in recognising what kinds of material culture may be encountered in the Sesse Islands and in examining how the archaeology of the Sesse Islands may be similar or different to the surrounding regional archaeology. This data will highlight shared material culture around the lake, isolates of material culture, and raw material sourcing.

2.6 Coastal Sites in the Lake Victoria Basin

Previous archaeological work in East Africa has been unevenly distributed, with the majority of research around the lake Victoria Basin focussing on aceramic Stone Age sites, and the remaining Uganda research has concentrated on later inland kingdoms. This section synthesises what is known of the coastal sites associated with post-Stone Age ceramic evidence in the Lake Victoria Basin. (For details of LSA Kansyore ceramic sites in the Lake Victoria basin see Posnansky et al. 2005; Posnansky 1961c; Jackson et al. 1965; Chaplin 1966; 1974; Wandibba 1990; Phillipson 1997; 1993; Posnansky 1967; Karega-Munene 1993; 2003; Robertshaw 1991a; Collett and Robertshaw 1980; Mosley and Davidson 1992; Thorp 1992; Dale 2000; 2007; Dale et al. 2004; Lane et al. 2006; 2007; Prendergast 2008; 2010; Prendergast and Lane 2008; Prendergast et al. 2007; Ashley 2005; Dale and Ashley 2010). Nsongezi rockshelter and Kansyore Island, located on the Kagera River, will be presented here as their sequences extend from the LSA into the LIA.

Initial discovery of sites on the northern lakeshore was accidental rather than by systematic survey, and recorded by the geologist E. J. Wayland working as the director of the Geological Survey for the Uganda protectorate at the time. Later archaeological research by both Andrew Reid and Ceri Ashley focussed on the systematic documentation and analysis of coastal sites in the Lake Victoria basin, as well as a re-analysis of earlier material. The ‘Luzira Head’ assemblage is one such accidentally discovered site, recovered from pits revealed during the excavation of a prison compound on Luzira Hill. Similarly the unique assemblage from Entebbe consisting of two broken ceramic figures was discovered during excavations for a new garage at the Geological Survey in Entebbe, with little archaeological context (Posnansky and Chaplin 1968). The extensive repertoire of ceramics from Buloba Hill derives from a combination of surface collection by an unknown school teacher which was then donated to the Uganda Museum and a later archaeological survey conducted by Andrew Reid in 2004, with resulting material analysed by Ashley (2005).

Cave and rockshelter sites are anther common category of archaeological site in the Lake Victoria Basin. Aerodrome Cave No. 1 and Bugongo Point Cave No. 4 are both archaeological sites from the Entebbe peninsula, though these are both aceramic Stone Age sites (Marshall 1954). Brachi (1960) makes brief reference to ceramics from both caves, though no such information could be located in the report by Marshall. Hippo Bay Cave, also from the Entebbe peninsula, was the first discovered cave site with ceramic remains near the lakeshore, initially recorded by Brachi (1960). Later survey by Andrew Reid resulted in identification of a rock shelter at Namusenyu, the material from which was has been analysed by Ashley (2005). Two new open sites (Lulongo, Sanzi) were also discovered on the northern lakeshore during Reid’s surveys from 2001 – 2004 and excavated with the resulting ceramic assemblages analysed by Ashley (2005; 2010). Minor references are made elsewhere to Urewe ceramic material from Mwiri Hill and Waiya Bay (Posnansky 1961c), and Entebbe Ware from Pumping Station Point (Marshall 1954). However the assemblages are small and records are sparse, for which reasons they have not been presented here.

Two Kenyan lakeshore sites from the Siaya district, Haa and Usenge 3, will also be mentioned here to give an example of recent research into Early Iron Age ceramics extending around the lakeshore to the northeast, beyond the modern border of Uganda. These assemblages are the results of archaeological survey conducted by Paul Lane, with resulting ceramics analysed by Ashley (2005).

Kansyore Island was first recorded and excavated by Chapman (1967). Aside from ceramics, the trenches yielded lithics, bone, shell, and iron. The ceramic evidence suggested an archaeological sequence extending from the LSA to the LIA. The associated LSA ceramics were named ‘Kansyore Ware’, and this became the type site for the LSA ceramic (Chapman 1967). The fragmented EIA dimple-based Urewe ceramics at the site featured typical Urewe decorative techniques of incised motifs and cross hatching, and were mixed throughout the trench with the Kansyore sherds, though distinctions on chronology were made based upon the relative abundance of each type of ceramic through the stratigraphic layers of the trench (Chapman 1967). 'Knotted grass roulette' ceramics bring the sequence to the LIA, and from an analysis of Chapman's illustrations this roulette can be distinguished as TGR.

Nsongezi Rockshelter, overlooking the Kagera River, was initially investigated by E. J. Wayland in 1932, O'Brien in 1935 (see O'Brien 1939), and van Riet Lowe in 1937 (see van Riet Lowe 1952). Deeming their results insufficient, Pearce and Posnansky (1963) conducted a detailed re-excavation of the rockshelter (see Nelson and Posnansky 1970 for an account of the lithics from this excavation). A single LSA Kansyore sherd was recovered, with the majority of ceramics being identified as EIA Urewe Ware. From Pearce and Posnansky's excavation, a presumed LSA hearth located directly below the Kansyore sherd was radiocarbon dated to 925±150 AD (sample M-1113 (Crane and Griffin 1962: 201)), leading them to suggest a post-1000 AD date for the Kansyore and Urewe ceramics. However subsequent analysis of this radiocarbon date by Clist (1987) has led to its rejection. The Urewe ceramics fit the standard definition with incised and cross-hatched decoration, though only one dimple-base was covered. A regional variation of black slips and burnishing was identified on the Nsongezi Urewe (Posnansky 1961a). Illustrations of the 'knotted grass roulette' ceramics from the site (Pearce and Posnansky 1963:88) can be identified as TGR decorated.

The **Luzira Head** assemblage was accidentally discovered in 1929 whilst digging the grounds of the Luzira prison on Luzira Hill in eastern Kampala, and it was subsequently recorded by E. J. Wayland. The artefacts, consisting of seven 'figurine' fragments associated with ceramics and lithics, had been deliberately buried in three deep pits at time of deposition, and may have been intentionally broken prior to interment. The figurine fragments represented stylised human figures with cylindrical bodies, extended arms and shortened legs. The 'Luzira Head' itself is a hollow ceramic onto which human features were applied in a protruding manner (eyes, nose, lips and chin). The head does not match any of the body fragments, and all appear to be from distinct figurines. The associated ceramics feature TGR roulette and incised cross-hatching and linear decorations (Wayland et al. 1933; Wayland 1933; Braunholtz 1936;

Posnansky 1967; Posnansky and Chaplin 1968; Posnansky et al. 2005; Ashley and Reid 2008; Reid and Ashley 2008). While early analysis of the collection assumed a late second millennium date due in part to the presence of roulette ceramics, a re-analysis has provided a new proxy date of the late first/early second millennium AD (Reid 2002; Ashley and Reid 2008). This re-dating of the collection was made possible by associating the ceramics found with the head to similar examples with secure provenance and dating from other coastal and nearby island sites (i.e. Hippo Bay Cave and Lolui Island).The ceramics at Luzira and the comparable examples on Lolui Island were identified as part of a widespread ceramic tradition which parallels the typical EIA Urewe, but is less detailed and of lower quality; this tradition has been recorded as 'Devolved Urewe'. These changes to typical Urewe form and design are unique to the lakeshore environs and hence represent a local ceramic adaptation. The ceramic sherds and the figurines/Head are made of the same local clays and can be assumed to be a product of the same community, with similarities in decorative techniques suggesting the two clay traditions are linked (Ashley and Reid 2008).

The re-dating of the Luzira Head assemblage would not have been possible without studies of similar materials from other sites around the lakeshore. This expresses a need to examine the coastal and island sites more fully to understand the spheres of interaction around the lake and the spread of different types of ceramics. Furthermore, the figurine fragments in the Luzira collection and figurines from the nearby Entebbe peninsula (Posnansky and Chaplin 1968) are unique representations of the human form within East Africa. Based on Ashley and Reid's analysis, the Devolved Urewe found with the Luzira Head is part of a wider tradition around the lake. The same clay source had been used to construct the Devolved Urewe and the figurines, suggesting the two clay traditions are linked (Ashley and Reid 2008); therefore figurative ceramics may also be a more widely spread feature around the lake as with the Devolved Urewe. An archaeology of the Sesse Islands would help highlight the extent of these ceramic traditions.

Two terracotta figurines associated with Entebbe ceramics were discovered on Kanyanya Hill at **Entebbe** in 1964 during the building work at the Geological Survey of Uganda. The figurines were part of an artefact layer also containing broken ceramics and cattle bones, all of which had been subject post-depositional downslope movements. The larger figurine was decorated with red, black, and white pigment in stripes, with the lower end adorned with a representation of female genital organs and the opposite side with a broken protuberance which may have been a penis. The smaller figurine is recognised as a phallus, with red pigment decorating one end and used to paint vertical bands onto the body (Posnansky and Chaplin 1968; Reid and Ashley 2008).The accompanying ceramic assemblage bore some decorative and morphological affinities to 'Entebbe Ware' ceramics from the Luzira Head collection, from a collection at Hippo Bay Cave, and from Lolui Island (Twisted String Roulette decoration, internal comb scoring, and 'large' hemispherical bowl forms)(Posnansky 1967; Posnansky and Chaplin 1968; Posnansky et al. 2005). From these ceramic affinities, Posnansky and Chaplin associated the figures with the Late Iron Age Buganda Kingdom; however as with the Entebbe ceramics in the Luzira Head collection, this was based on the previous erroneous radiocarbon dates for Entebbe ware and arguments have been made for the Entebbe figurines to also be re-dated to the early second millennium AD (Reid 2002; Reid and Ashley 2008). This indicates the presence of symbolic figurines in the Great Lakes during the early second millennium AD, suggesting a move to apply ceramic technology to non-domestic contexts (Posnansky and Chaplin 1968; Ashley and Reid 2008). Again, the Entebbe figurines could not be dated without being associated to other sites in the Lake Victoria region with comparable material, emphasising the importance of similarities in material culture around the lake as evidence for regional interaction. Considering the ritual associations with the lake recorded in the historic period, perhaps this application of ceramic technologies to non-domestic contexts around the lake relates to a specific ritual function, and may be useful in examining the history of ritual practices around the lake.

Hippo Bay Cave has been mentioned here for its significance in understanding and dating the Entebbe ceramic tradition. The site is a rock shelter on the south western tip of the Entebbe peninsula. It was first excavated by Brachi (1960), who found an abundance of Entebbe Ware characterised by TGR decoration and internal comb scoring similar to ceramics found elsewhere on the Entebbe peninsula (Marshall 1954; Posnansky 1961a), as well as something he named 'Festoon Ceramics', and 'water jars'.   Brachi also recorded a number of unrecognised decorations with some applied to ceramics with a similar morphology as the Entebbe Ware, such as 'embossed pottery', and others applied to very different, thin walled ceramics ('lattice decoration'). 'Black burnished ware' was used to describe two unique sherds. With a similar morphology to Entebbe ceramics but a different style of decoration which resembles comb stamped motifs (see Brachi 1960:66 Figure 4 and Posnansky 1961a:192), Festoon ceramics have subsequently been interpreted by Ashley (2005) as a localised variation of Entebbe pottery. The 'water jars' are named so because they resembled the form of modern ceramic (collared jar) used to collect water. Posnansky also records the rare application of a dimple base and 'channelled' or incised decoration to ceramics which otherwise follow an Entebbe morphology at Hippo Bay Cave (Posnansky 1961a; 1968a). Based on later excavations at the cave in 2001, a fifteenth century AD radiocarbon date from the site provides the only accepted date for Entebbe ware (Reid and Ashley 2008).

The site of **Buloba** is located eight kilometres west of Kampala on the Mityana road. Surface scatters of ceramics were originally collected by an anonymous teacher and donated to the Uganda Museum. Brief mentions of the Buloba ceramics were made by Posnansky, remarking upon similarities between these ceramics and Entebbe ceramics in the assemblage from Hippo Bay Cave (Posnansky 1961a; 1961c). Later re-analysis of the collection by Ashley (2005; 2010) identified stylistic similarities between the Buloba collection and Entebbe-style ceramics from Malanga Lweru on Bugala Island in the Sesse archipelago. Subsequently Reid returned to Buloba Hill in 2004 to carry out a more extensive survey, with the results analysed by Ashley yielding only one definite 'Entebbe' sherd, but a plethora of 'Entebbe-style' ceramics. Due to a dense clustering of these Entebbe-style ceramics at Buloba Hill they were renamed 'Buloba Ceramics' (Ashley 2005; 2010).

Lulongo, also located on the shores on the Entebbe peninsula, was excavated in 2001 by Reid, and analysed by Ashley. The diverse surface assemblage included Urewe, Entebbe, Buloba, Lutoboka and Festoon ceramics. The Urewe ceramics at the site were typical of other Urewe examples from southern Uganda, apart from one sherd which bore a unique decoration. Therefore the site was typologically dated to the EIA (Ashley 2005; 2010).

Namusenyu is a rock shelter located fifteen metres from the lakeshore. An excavation in 2002 by Reid and subsequent analysis by Ashley uncovered Urewe pottery mixed with previously unrecorded stone-impressed ware (which I have re-identified as cord wrapped paddle (CWP) impressed pottery in my analysis (see Chapter 8 section 8.3.1 for discussion)). An obsidian scraper was also associated with this material. As stone impressed pottery in the Great Lakes was recorded in oral traditions as relating to early twentieth century potters from Buvuma Island, it was suggested the two pottery traditions present in the Namusenyu rock shelter relate to two temporally discrete phases of occupation which have been subject to post-depositional mixing, and therefore the site was typologically ascribed an EIA date due to the presence of Urewe ceramics (Reid 2003b; Ashley 2005; 2010).

Sanzi is a large open site one kilometre across the bay from Namusenyu. The site was located from an erosional gully and excavated by Reid in 2001 and 2002, with subsequent analysis of the ceramics by Ashley (2005; 2010). One radiocarbon date of the late first millennium AD came from a charcoal sample securely associated with a piece of ceramic and hence the site has been attributed this as a terminal date. A second radiocarbon date which would place the site in the LSA was disregarded due to the extensive presence of ceramics at the site (see Table 2.1). Interestingly, the Sanzi assemblages contain all known decorative techniques: knotted strip roulette, carved wooden roulette, Urewe, Entebbe, Lutoboka, Sozi, WPT Urewe and a new 'Sanzi Ceramic' (Ashley 2010; Reid 2002; Posnansky et al. 2005; Reid and Ashley 2008). Perhaps considering the location on a bay in Lake Victoria and our knowledge of later trade networks around the lake (see Kenny 1972) Sanzi may have been an important trade locale from the terminal Urewe period onwards, thus attracting a number of different ceramics from a variety of communities around the lake.

Site	Raw Date (BP)	Lab No.	1 σ calibration	2 σ calibration
Sanzi	2580±40	Beta - 207807	800 - 780 BC	820 - 770 BC
Sanzi	1350±40	Beta - 207808	AD 660 - 690	AD 640 - 770

Table 2. 1: Radiocarbon dated samples from Sanzi

The site of **Luka**, five kilometres from the lakeshore, was excavated by Reid in 2003 and analysed by Ashley (2005). The only archaeological feature was ceramics in a 1.75m diameter ashy-loam pit. The sherds refitted well to create several semi-complete to complete pots which had been placed intentionally in the pit. The ceramics were highly typical of Urewe fabrics and as the assemblage does not follow the normal process of discard following breakage Ashley suggests these vessels remained functional. Luka therefore was taken as an example of deposition of Urewe ceramics in a non-domestic context. Furthermore, the high level of decoration on the vessels was interpreted as indicating a high quality of craftsmanship. This evidence has led Ashley to conclude that 'ostentatious consumption' was taking place, imbued with symbolism and extra-ordinary meaning. The resulting debris was then deposited in a discrete locale (Ashley 2005). This again could be exemplary of a long ritual tradition associated with local perceptions of Lake Victoria.

Outside the Ugandan sector of the lake basin, the Siaya district in western Kenya on the north eastern lakeshore has been subject to a long history of archaeological research exhibiting a long continuity of occupation in the ceramic record. This is the region where Leaky discovered the type site for Urewe ware, and contains one of the most important Urewe clusters in the whole Great Lakes region with sites dated to the 5th century AD (Lane et al. 2006; 2007). The Siaya district was surveyed and excavated by Paul Lane from 1999-2003, and again by Ashley in 2003-2004. The results of these surveys identified Kansyore sites along the Yala and Nzoia rivers, shell middens on the shores of Lake Saru, and Urewe scatters at Lake Saru and along the Yala River close to the 1948 type site. Two new ceramics types emerged from this search; one was termed 'Middle Iron Age Ceramics' (MIA), found at four sites on the Yala River. Entebbe sherds were also discovered for the first time in Kenya at two sites on the Yimbo coastline, hinting that the rich ceramic diversity observed around Lake Victoria in Uganda may extend into Kenya (Ashley 2005; Lane et al. 2006; 2007;).

The site of **Haa**, at the Ugenya location in the Siaya District, contained both Urewe and Kansyore ceramics. As vegetation at the site was too extensive for a surface collection, 50cm x 50cm shovel test pits were dug in ten centimetre spits for sub-surface survey, with individual artefact collection and stratigraphic recording in every pit (Ashley 2005). STPs are commonly used in the American Southwest (e.g. Plog 1978) to counter issues of surface vegetation coverage, and elsewhere in East Africa they have been employed in survey strategies on Pemba Island off the eastern coast of Kenya (Fleisher and LaViolette 1999), and by Lydia Wilson at Kenyan coastal sites around Kilifi (pers. observation). The STPs at Haa uncovered mostly Kansyore sherds in the lower layers with few Urewe ceramics in the upper layers. The presence of shell inclusions in the Urewe sherds suggests the use of aquatic clays. However typical Urewe embellishments (e.g. neatly incised decorations, bevelled rims, dimple bases) are not attempted or present in very simplified forms. This is taken to assume that professional potters were not present, or the socio-economic base was not strong enough to support semi-specialised potters (Ashley 2005).

At nearby **Usenge 3**, jars comprised a small element of the overall Urewe assemblage recorded at the site, whereas elsewhere jars are expected to dominate the typical Urewe assemblage. Instead there is a heightened presence of multi-purpose bowls, taken to reflect upon a minor role of liquids and hence liquid bearing vessels at Usenge 3 (Lane et al. 2006; 2007). Ashley (2005) re-defines this ceramic as 'Contact Urewe', based upon a premise that the differences in expression of the Urewe assemblage cannot be due to temporal variation as radiocarbon dates fall within the expected range for Urewe, nor can the change be attributed to spatial difference due to the nearby (presumed though undated) contemporaneous type site. Therefore the interpretation offered is the borrowing of ceramic technology by a non-Urewe producing group through trade, exchange and interaction, with the absence of skilled potters to create Urewe proper (Ashley 2005; Lane et al. 2006; 2007).

2.7 Island Sites outside the Sesse Archipelago

One island and one cluster of islands have been archaeologically investigated outside the Sesse archipelago: Lolui Island and the Buvuma Island group. Lolui was surveyed by Merrick Posnansky in 1964, and has been subjected to repeated analysis by Posnansky and by Reid and Ashley due to the density of archaeological remains extending from the MSA to the LIA, with a brief hiatus of remains in the LSA. The

Buvuma Island group, consisting of the individual islands of Buvuma, Bugaia, Bukwaya, Bwema, and Kibibi, were surveyed in 1967 and 1968. This survey identified and dated a number of MSA and LSA artefacts, with little mention of ceramics (McFarlane 1967; Nenquin 1971; ARMSY 1969; Phillipson 1977; 1993; Posnansky et al. 2005).

Lolui is an isolated island in the north east of Lake Victoria. The nearest island is 8km away, and Lolui lies 30km from the mainland. The island itself is 10km across rising 100m above the lake and characterised by granite geology (Posnansky et al. 2005). In 1964 Lolui was surveyed by Posnansky and Paul Temple; the island was circumnavigated by boat and it was concluded that the northern half of the island should be explored as the southern portion lacked suitable beaches for examination whilst the remaining rocky terrain was covered by impenetrable forest. The exposed land in the south yielded few rockshelters with no ceramics, and only featured nineteenth century and modern roulette pottery on the shoreline. The remaining northern sector of the island was surveyed and excavated, and this excavated material was later revisited by Reid and Ashley (Posnansky 1967; 1973; Posnansky et al. 2005; Ashley 2010). There is an older Middle Stone Age aceramic occupation of the island, with evidence of rock gongs and red and white geometric rock petroglyphs as well as stone tools (Posnansky et al. 2005); however the first ceramics on the island were identifies as Urewe, and associated Lolui Island with the EIA.

Lolui offers a larger Urewe collection than any recovered from the mainland. The Urewe sherds were mostly derived from surface contexts and erosion exposures, including rockshelters on the island, with one shelter yielding twelve semi to near complete vessels. These ceramics match the typical Urewe assemblages from the type-site (Posnansky 1967). Posnansky also encountered a type of Urewe pottery from erosion gullies in the centre of the island, which he named 'Devolved Urewe'. These vessels are similar to the typical Urewe in form, but constructed from poor quality local clays sourced within the island (whereas the refined Urewe was constructed from the same clays as mainland Urewe assemblages) with less investment in production and less refined decorative techniques (Reid and Ashley 2008; Posnansky 1967; 1973). Posnansky suggests the degeneration of ceramic skills to be a result of physical and cultural isolation and insularisation caused by a loss of contact with the productive core of the mainland, leading to improvisation and creation of a new ceramic productive system (Posnansky 1967; 1973). However subsequent research in the lake basin has shown that devolved Urewe is not unique to Lolui, but follows a wider trend of economic simplification at the end on the first millennium AD (Reid 2002; 2003a; 2003b). Furthermore, three thousand sherds were collected from the surface of the cairn field area on Lolui. Excavation around these cairns revealed Devolved Urewe, Lutoboka Ware (from the Sesse Islands in the western lake), and Entebbe ceramics, which suggests continued settlement in the early second millennium AD with trade and interaction rather than insularisation (Posnansky et al. 2005).

The evidence from Lolui indicates a long tradition of interaction and trade between the island and the lakeshore, and between Lolui and other islands further west. There is early evidence for raw material sourcing from the mainland, as well as similarities between (undated) EIA ceramics on the mainland, and (undated) EIA ceramics on Lolui, suggesting direct interaction. Earlier research on Lolui (Posnansky 1967) proposed that the creation of local ceramics was a result of increasing isolation and loss of contact with the productive core of the mainland, but Ashley's later work has highlighted the presence of other ceramics on Lolui indicative of continued trade and interaction within the lake. Some of the typologies (Lutoboka Ware) have been traced to Bugala Island in the Sesse archipelago, and Entebbe ware is present throughout the entire coastline and among the previously researched islands. Evidently isolation was not a factor in the degradation of Urewe ceramics as initially proposed by Posnansky, and other explanations must be sought for a change in ceramic manufacturing techniques.

During survey of the **Buvuma Island group** excavations took place at Munyama Cave on Buvuma Island, and at Nakisito on Bugaia; however neither of these excavations yielded ceramics. All accounts of ceramics are gauged from surface remains, and the survey was restricted to non-forested areas with ground visibility (Nenquin 1971). The survey on **Buvuma Island** yielded clay tobacco pipes, as well as some pottery with a comb-stamped impression similar to Chapman's 'Kantsyore Ware type I' (Nenquin 1971; Chapman 1967). Other ceramic finds from Buvuma include dimple- based ceramics, bowls with a perforated base, bowls with 'nicked' rims, and vessels decorated with lattice designs, carved wooden roulettes, incised decorations, and comb decorations. These are well illustrated and described by Nenquin (1971), with associations to Kansyore Ware, Urewe Ware and Entebbe Ware implied. Ceramics were less frequently encountered on **Bugaia Island**, and have been associated with Entebbe Ware (Nenquin 1971).

2.8 Sesse Island Sites

Fagan and Lofgren carried out a reconnaissance survey of the Sesse Islands in 1965, with the primary objective of locating EIA sites, though most material during the survey came from the MSA, LSA and LIA (Fagan and Lofgren 1966a). The major islands were traversed on foot, excluding Bubembe, Buyovo, Bugazi, Buyanga, Buva, Lulamba, Mpugwe, and Funve, which were either too overgrown or too remote to visit, and survey was confined to non-forested areas. Iron Age remains were predominately manifest through minor earthworks and abandoned field systems on Bugala and Bubeke, as the small amount of ceramics encountered were poorly preserved. The few ceramics described by Fagan and Lofgren resemble Entebbe Ceramics and incised ceramics similar to the 'Devolved Urewe' from Lolui Island (Fagan and Lofgren 1966a).

The northern peninsula of Bugala exhibited artificial ditches and embankments, which are identified as nineteenth century battle grounds in local histories (Fagan and Lofgren 1966a). The opposite end of Bugala had rows of boulders and shallow ditches demarcating six to seven rectangular fields. Two miles north of these fields a village site was identified with two large broken querns, a rubbing stone, some eroded pot sherds, and small garden plots outlined by shallow embankments and piles of stone (Fagan and Lofgren 1966a). Fields on Bubeke Island were characterised by three parallel rows of piled up stones 38m long and 15m apart, associated with piles of stone 1m high and 6m wide on a hillside slope south of the central ridge of the island. The top of the ridge exhibited shallow ditches with a shallow basin in the centre 0.6m deep and 15m across, dammed by a row of boulders on one side (Fagan and Lofgren 1966a). These field systems outlined by a combination of ditches and shallow piles of stones are different to both those found on Lolui (single rows of stones), and in the Buvuma Island group (piled lines of lateritic gravel). This may be evidence of individual development of agriculture techniques around the lake.

The only other archaeological work carried out in the Sesse Islands was Andrew Reid's survey of Bugala Island in 2002, with reconnaissance excavations in 2003. All ceramic evidence was subsequently analysed as the focus of Ashley's PhD work (2005). This research identified thirty-seven new sites with Urewe assemblages in thirteen locales, eleven bearing Entebbe, and two with unknown ceramic styles (based on the typologies outlined at the beginning of this chapter) (Reid 2004; Ashley 2005). Five of these sites were excavated: Entebezamikusa, Lutoboka, Sozi, Malanga Lweru, and Kasenyi Bumangi.

The excavation at **Entebezamikusa** showed a single stratigraphically comparable horizon of archaeological activity across the site, and ceramics uncovered were concordant with a typical Urewe assemblage in terms of decorative techniques, fabrics and vessel forms. The total sherd data indicated exclusive use of incised decorative techniques at the site, and reconstructable sherd data indicated a restricted repertoire of fabrics and formal features, such as bevelled rims which are assumed to be diagnostic of the EIA ceramic. One sample from this single component site gave a radiocarbon date of 1890±60 b.p. (see Table 2.2), which not only lies within the accepted timespan for Urewe presence in Uganda, but is actually the earliest known Urewe site in the whole of Uganda *and* among the earliest non-BC dates from Buhaya, Rwanda and Burundi (Ashley 2005). Raw rather than calibrated dates are presented for the Bugala Island sites as proximity to the equator has implications for calibration (see Table 2.2). Considering this is the earliest date for Urewe in Uganda, it can be established that Urewe-producing communities had some kind of maritime technology in order to exploit the lake environment and settle offshore islands (Reid 2003b).

Site	Raw Date (BP)	Lab No. (CSIR)	Calibration (Southern Hemisphere)	Calibration (Northern Hemisphere)
Entebezamikusa	1890±60	9038	AD 85 - 238	AD 61 - 215

Table 2. 2: Radiocarbon dated sample from Entebezamikusa

The prominent ceramic vessel forms excavated from Entebezamikusa were produced from local clays and include globular jars with everted necks constructed from coarse grained clays, hemispherical bowls constructed from coarse and fine grained clays, open bowls constructed from coarse grained clays, closed bowls, and straight necked jars. Dimple based vessels in the collection were constructed from fine grained clays. These are all taken to correspond with Leakey's (1948) Urewe typology (developed from collections in western Kenya), and Van Grunderbeek's (1988) 60:40 ratio of jars to bowls. Bevelled rims dominate the reconstructable assemblage, with few simple rounded and squared rims. Simple rims are most often applied to jars in the Entebezamikusa assemblage, whereas hemispherical bowls exhibited a variety of rim types, and open bowls were adorned with the most complex bevels. Decoration focusses on incised techniques in horizontal banding and cross-hatching; open bowls feature the highest amount of decoration followed by hemispherical bowls and then jars (Ashley 2005).

Lutoboka is located on the beach east of Kalangala Town. The ceramics from the shallow deposits are different to any previously known assemblage, and internal typological consistency coupled with shallow depth suggests short term use of the site. Radiocarbon samples dated to 1130±35 b.p. and 1320±50 b.p. (see Table 2.3) place the site in the terminal Urewe/late first millennium period, of which little is known about Interlacustrine history (Ashley 2005; Reid and Ashley 2008).

Site	Raw Date (BP)	Lab No. (CSIR)	Calibration (Southern Hemisphere)	Calibration (Northern Hemisphere)
Lutoboka	1130±35	9019	AD 902 - 995	AD 884 - 974
Lutoboka	1320±50	9018	AD 676 - 780	AD 661 - 760

Table 2. 3: Radiocarbon dated samples from Lutoboka

While the collection is small, the ceramics were constructed of local clays and the internal consistency suggests a discrete, distinct ceramic phenomenon. Partial matches to the Lutoboka pottery were found in the Entebbe figurine assemblage and from the unpublished Lolui ceramics. In both cases similar pottery was found with Entebbe Ware, and with devolved Urewe on Lolui. This suggests the Lutoboka pottery was not restricted to Bugala Island, and the site may be part of a wider lacustrine system. Lutoboka Ware exhibiting the same diagnostic features of forms, facetted rims, and panels of incised decoration as Urewe ceramics implies a link between the two traditions. However Lutoboka ceramics have a more limited formal range compared to classic Urewe, with decoration stylistically restricted and crudely executed (Posnansky et al 2005; Ashley 2010). With radiocarbon dates placing the Lutoboka activity at the end of the Urewe-using spectrum, it may be assumed that the transmission of Urewe typological features to the post-Urewe communities is indicative of continuity in population and settlement. Associations between the Entebbe figurines and Lolui ceramics provide a potentially new proxy date for the Entebbe figurine assemblage, which emphasises a need for a re-analysis of the pre-existing archaeological sequence for the area (Reid and Ashley 2008).

Sozi is located in a rockshelter on Bugala Island. The 2002 excavation revealed a limited assemblage that was similar to the Lutoboka ceramics, and contained one Entebbe sherd; while the assemblage is limited, it shows the Lutoboka ceramics to be a phenomenon associated with other nearby locations (Ashley 2010). There was one anomalous closed mouth bowl from Lutoboka, which was distinct from the main assemblage but matches a closed-mouth bowl from Sozi. Therefore, while part of the same package of ceramic activity, due to its discrete style from other Lutoboka ceramics and presence at Sozi this closed mouth bowl form was renamed ‘Sozi ware’ during Ashley’s analysis. As the rock shelter at Sozi was too small for permanent settlement this assemblage was taken to represent the use of ephemeral settlements at that time (Ashley 2005).

Malanga Lweru was associated with a nearby concentration of piled stone cairns which yielded an Entebbe sherd and grindstones in excavation. The association between stone cairns and Entebbe pottery on both Lolui and here suggests cairn monuments are part of Entebbe-users cultural landscape. Stratigraphy from the excavation at the cairns and from Malanga Lweru itself suggests construction of the cairns and the site at the same time. Excavation at Malanga Lweru primarily uncovered diagnostically thickened Entebbe rims decorated with TGR and comb scoring, with small amounts of Urewe, Sozi, and Lutoboka pottery. The presence of these sherds in the Malanga Lweru assemblage which is predominated by Entebbe ceramics indicates a direct association between Sozi and Lutoboka ceramics and Entebbe pottery. Although five radiocarbon dates place Malanga Lweru in the LSA – EIA (see Tables 2.4 and 2.5), all dates have been presumed erroneous as they lay within the Urewe time period, and the site is interpreted as belonging to the later ‘Transitional’ period due to the dominance of Entebbe ceramics in the assemblage(Ashley 2005; Reid and Ashley 2008).

Other finds from Malanga Lweru include ‘Entebbe-like’ sherds, which are from smaller vessels than typical Entebbe but bear the same Entebbe morphologies, with the addition of squared and thickened rim styles, simpler round/square rims, and a handle. The raw materials utilised in ceramic manufacture are derived from sources local to the island, due to the microscopic presence of freshwater sponge spicules in the ceramic (Ashely 2005). Some snapped cane glass beads acquired from the East African coastal trade network were uncovered at Malanga Lweru, and have been dated to the 13th/14th centuries a.d. by association with similar finds from Ntusi (Reid 2003a). Finished iron products recovered from the site (spearheads) were also attributed to this trade network as there is little evidence for iron working on Bugala. As no other sites on the island yielded metal or glass beads, Malanga Lweru may have held a privileged place in a wider trade and exchange network (Ashley and Reid 2008).

Site	Raw Date (BP)	Lab No.	1 σ calibration	2 σ calibration
Malanga Lweru	2410±40	Beta - 207804	410 - 740 BC	760 - 400 BC
Malanga Lweru	2050±50	Beta - 207805	190 - 50 BC	350 BC - AD 10
Malanga Lweru	2050±50	Beta - 207806	80 BC - AD 30	170 BC - AD 70

Table 2. 4: Three radiocarbon samples from Malanga Lweru

Site	Raw Date (BP)	Lab No. (CSIR)	Calibration (Southern Hemisphere)	Calibration (Northern Hemisphere)
Malanga Lweru	1470±60	9021	AD 583 - 661	AD 544 - 646
Malanga Lweru	2420±50	9010	502 - 394 BC	750- 403 BC

Table 2. 5: Two further radiocarbon samples from Malanga Lweru (dated by the CSIR laboratory)

The excavation at **Kasenyi Bumangi** revealed a stratigraphic sequence matching the other island sites (shallow, single horizon buried cultural deposits overlaying gravelly natural sub-soil). There was a small Entebbe assemblage, which had a high proportion of rounded thickened rims (which is common on Entebbe sites) rather than the squared thickened rims dominating the Malanga Lweru assemblage. Considering the proximity of Kasenyi Bumangi to Malanga Lweru, the sites demonstrate intra-Entebbe differentiation within a small geographical area (Ashley 2005).

The widespread presence of Urewe ceramics on Bugala is presumed to reflect a settled occupation, with early radiocarbon dates from Entebezamikusa indicating that Urewe communities were actively exploiting the lacustrine environment and possessed knowledge of aquatic transport. Among the Urewe ceramics open bowls exhibited the highest level of investment and effort, with construction from finer grained fabrics, more complex rims and a greater volume of surface decorations. Jars are the most common vessel form, but exhibit the least investment in production. Based on the extent of decoration and refinement of production, Ashley assumes the open bowls were most visible in the serving and consumption of food, whereas less investment was placed in the construction of the less publicly visible cooking and storage vessels. However the dominance of jars in the assemblage is taken to imply that Urewe production was orientated around liquid storage and/or consumption (Ashley 2005).

This work on Bugala also highlights evidence for regional trade networks, based on the widespread occurrence of Entebbe pottery which is also found at all other coastal and island sites outside the archipelago. The association of both Sozi and Lutoboka Ware with Entebbe sherds at Malanga Lweru emphasises the emergence of distinct local styles among more widely traded ceramics, which may again relate to the creation of local identities, and the glass beads at Malanga Lweru indicate the presence of extensive trade networks across and beyond the lake. Historic texts describe a burgeoning lacustrine trade network in the pre-colonial period. References have been made to a large scale trade network deriving from the eastern Kenyan coast as being responsible for the presence of glass beads at Malanga Lweru, Ntusi, and Munsa (Reid 2003a; Robertshaw 1997; 2001; Robertshaw et al. 1997). Records (such as the Periplus of the Erythraean Sea) suggest that prior to the 10th century ivory was leaving the East African savannah via north western Tanzania and inland Kenya, and arriving in Spain and Italy by AD 962-966 (Casson 1989). At the same time slaves were being transported to China (Mutoro 1998). By 1882 the Buganda capital at Rubaga (located in present day Kampala) was the most northerly depot for the trade in ivory and slaves in East Africa; "*From here, slaves were transported across Lake Victoria in* *the Kabaka's canoes, in batches of 200 and more at a time, before reaching the main slave and ivory depot and Tabora* en route *to Zanzibar. Arab and Swahili traders even brought dhows to Buganda to replace the Kabaka's sewn canoes*" (Mutoro 1998:200). These records derive from early traveller accounts, though importantly whilst some trade was inspired by the Zanzibaris on coastal East Africa, records speak of localised trade on Lake Victoria which is likely to have existed with greater antiquity than the coastal trade (Kenny 1979).

Iron and salt were highly transportable and widely traded goods across the lake due to a relative scarcity. Some locales on the south-eastern lakeshore such as Kaksingiri were producing salt by leaching from the soil utilising ceramics (Wandibba 1992). Roscoe (1911) records that salt entered Buganda from the east, Speke (1863) also recorded an extraction of salt from the Gulf of Kavirondo on the eastern lakeshore for transportation to Buganda, and Emin Pasha recorded the exchange of salt for cowrie shells due to the lack of an equally valuable exchange item (Kenny 1979). Other famous locales of salt production within the regional trade networks were Kibiro in western Uganda with production and trade dated to the 14th century (Ashley and Reid 2008; Phillipson 1993; Connah 1993b; 2003), and Katwe on the northern shore of Lake Edward (Mutoro 1998).

Oral accounts also refer to a flow of iron products into Kaksingiri (possibly in exchange for salt) from Ukara, Ukerewe, Kome Island, Uzinza, Buhaya, from 'Sese', and from Buganda or Somia. Some traditions claim 'Sese' and the 'Sesse' Islands are one in the same, however other sources suggest 'Sese' refers to the ruling clans of Ukerewe (Kenny 1979). Iron was commonly traded in the form of '*evisiria*', which was a piece of metal fashioned into the shape of a hoe-blade as a form of currency (Kenny 1979). Some sources suggest Bunyoro in the west of Uganda was rich in iron ore, which formed a basis for trade (Fisher 1911; Mair 1934; Wainwright 1954; Dunbar 1965). Few oral accounts also talk of the transport of food, particularly dried bananas, from Buganda and Busoga on the north west of the lake to the eastern lake, where local peculiarities in rainfall independent of the overall lake patterns caused frequent famine (Kenny 1979). Regardless of the accuracy and dates of this lacustrine trade we can interpret from the sources listed in this chapter that there is some history of interaction around the lake between the islands and the lakeshore. Furthermore, shared traits in past stone tool technologies and ceramic technologies between the islands and the mainland suggests these interactions have some antiquity, even if the nature of the goods traded has changed.

2.9 Summary of Previous Archaeological Research in the Lake Victoria Basin

The synthesis of previous work in the Lake Victoria basin provided here elucidates a number of issues which call for the development of a new direction in the regional archaeological approaches. The earliest scholars operating in the region under the colonial government were intent on identifying Stone Age remains, and cataloguing and describing them based on world-wide knowledge of the Palaeolithic , rather than offering an independent interpretation relative to the geographical context of discovery. Once African Archaeology had become established in its own right approaching the mid-twentieth century, scholars endeavoured to instigate an African-centric approach to the nomenclature used to describe the material evidence. However this sparked a still unresolved debate as to what nomenclature would be best; with a lack of clarity and uniformity in the period that followed the Burg Wartenstein Symposium of 1965, some scholars proposed wholly new terminology, and some advocated the maintenance of older nomenclature with detailed explanations as to what the terms entail in each case specific scenario.

Despite this lack of resolution, this period of debate between the third Pan-African Congress in 1955 and the Burg Wartenstein Symposium in 1965 highlighted the dearth of Iron Age research across the continent, with an over-emphasis on Stone Age Cultures. Thus real attempts were made to understand change in periods of time following the Late Stone Age and the instigation of metal-producing technologies. Within East Africa this work focussed on the appearance of ceramics, as their inception was recognised as heralding the terminal Stone Age and a perceived introduction of agricultural and metallurgical techniques, as part of a wider change sweeping across East and into Southern Africa. During this time, while euro-centric nomenclature had been dropped, the largely descriptive approach to the interpretation of material remains ensued. Ceramic ‘wares’ and ‘types’ were identified by shared decorative and forming techniques, and manifestations of these were taken to imply a shared culture over the vast geographical areas of their appearance .

Subsequent new theoretical discourse in African archaeology favours recognition of trade, interaction, and integration, rather than cultural assimilation and replacement. However the methodological approaches to the ceramics remains the same, as emphasised in the summary of archaeological sites in the Lake Victoria basin. Overwhelmingly it is apparent that identification of 'wares' based upon decorative and form similarities ensues, with sites being typologically dated based upon these similarities with a near absence of radiocarbon dates. In the cases of a number of EIA sites mentioned (e.g. Pumping Station Point, Waiya Bay, Mwiri Hill) the presence of a single sherd with a decorative similarity to other EIA wares has been taken as evidence to support an EIA date for the site. With this lack of absolute dating and a reliance on the ceramic corpus, the ceramic sequence in the region must be solid enough to support such extensive proxy dating.

To establish a reliable ceramic sequence, a more systematic method of data recovery is essential, with a number of early sites simply discovered by accident (Luzira Hill, Entebbe, Buloba Hill). Andrew Reid was the first to instigate systematic ground coverage on the northern lakeshore and Bugala Island, employing a method of survey designed specifically for the densely vegetated tropical environment. The number of sites located and excavated during his field research (Lulongo, Namusenyu, Sanzi, Sozi, Lutoboka, Entebezamikusa, Malanga Lweru) is testament to the successful techniques of discovery. The ceramic data resulting from Reid's research, alongside re-analysis of earlier ceramic assemblages, was used by Ashley to develop the ceramic typology presented in the sections 2.1 to 2.4 of this chapter. This current ceramic sequence is the most recent and most widely accepted study on ceramics in the Great Lakes region. With such wide and uncritical acceptance, little opposition to the sequence has been published. However an explanation of the two major methodological approaches at the forefront of ceramic analysis in the following chapter shows why Ashley's method should be reformed, and a more rigorous methodology developed.

Another issue which can be highlighted from the current chapter is a lack of recent archaeological data from the lake basin, aside from Reid's survey and Ashley's analysis. No published sources on ceramics from the Sesse Islands exist other than Ashely's work (2005; 2010), aside from descriptive mentions of Ashley's results by Posnansky and Reid in various works (Posnansky et al. 2005; Reid 2003b; Reid and Ashley 2008). Therefore an important process in examining the feasibility of a new approach to ceramics in the Great Lakes region will involve a re-analysis of Reid and Ashley's collections, as they have originally been approached from a methodological standpoint based in past research aims and goals, and a re-analysis of older collections which were examined in the development of Ashley's typologies, to remove any previous research biases.

Despite the range of previously studied ceramic assemblages listed in this chapter, the ensuing comparative analysis is limited to assemblage availability in the Uganda Museum, and only twelve complete collections were obtained. Eight of these were derived from Reid's fieldwork and have only ever been analysed by Ashley (Namusenyu, Sanzi, Luka, Entebezamikusa, Lutoboka, Malanga Lweru, Golwe (not listed in this chapter due to lack of any prior published data), and Kasenyi Bumangi), and four were collected longer in the past and re-analysed in Ashley's work (Buloba Hill, Hippo Bay Cave, Nsongezi, and Kansyore). Two incomplete collections were also re-analysed from the Uganda Museum stores (Lolui Island and Sozi), though little information can be garnered from the sparse number of sherds available for both sites. Some of these comparative sites re-analysed in the course of this thesis have previously been dated using radiocarbon methods, with dates mentioned in this chapter (Kansyore Island, Entebezamikusa, Malanga Lweru, Lutoboka, Nsongezi, Sanzi, and Hippo Bay Cave), whilst the remainder have been proxy dated in previous research based on their ceramic decorative and form associations. The re-analysis of these collections under the attribute-based method proposed in the following chapter will allow for a comparison between the utility of the older typological models and the new attribute-based method.

Chapter 3: Methodological Approaches to Ceramics

Both within and outside East Africa, ceramics are the most abundant material found at 'Iron Age' sites (McIntosh 1995a:3). Based on the composition of assemblages from previous research in the Lake Victoria basin (see Chapter 2), and the highly acidic ferralitic soils of the Sesse Islands (McFarlane 1967; Jackson and Gartlan 1965; Kaurichev 1979) it is unsurprising that ceramics form the largest component of the archaeological assemblages uncovered during fieldwork in the region. Therefore developing an appropriate ceramics analysis methodology is a keystone for this thesis, and any future work in the region.

Ceramics analysis should identify attributes which display consistent changes through time, as they can produce sequences which can be used to establish chronologies and relations between sites within a region (McIntosh 1995a:1). This is vital in locales where widespread radiocarbon dating is not viable due to either cost, the lack of adequate samples from sealed contexts, or problems of calibration (see Lertrit 2003 for a discussion of similar dating issues in prehistoric Thailand). Even when radiocarbon dates are proven valid, unless dating sherds directly, these dates do not order "*material in space*" which is the essence of archaeological investigation (McIntosh 1995a:3). The description, analysis and comparison of material culture at contemporaneous sites are also the best known archaeological methods for evaluating interaction between the sites.

Dunnell (1986) provides a brief history on the development of ceramic analysis techniques from their inception at the end of the nineteenth century. Broadly speaking there have been two major approaches to examining ceramics. One approach is commonly referred to as the 'type-variety method', which has been critiqued by Rice (1976), and the other is termed 'attribute-based analysis'. The modern type-variety method was generated from the work of scholars such as Ford, Krieger and Rouse, based on the 'synthesis of chronology and form' (Ford 1954a; 1954b; 1962; Krieger 1944; Rouse 1960). This operates on the assumption that forms, later called 'styles', had "*limited and coherent temporal and spatial distributions*" (Dunnell 1986:176). Classification of types, or 'wares', was based similarities of paste, surface treatment, and vessel form, which was taken to imply contemporaneity of the ceramics, and distribution was used to test the validity of these types (Dunnell 1986; Rice 1976). This "essentialist view" assumes that homogenous blocks of ceramic production are reflective of chronological periods, and that any variation from the main types of ceramic produced are inaccurate replications of the main/more popular ceramic, leaving no room for independent expression, or the co- existence of discrete ceramic traditions (Dunnell 1986). The type-variety method (and its variants) are still employed frequently in archaeological research, particularly in the Americas and anterior research conducted in East Africa. In the previous chapter I gave a summary of the chronological interpretations of ceramics in the Lake Victoria Basin, with the most recent and complete study conducted by Ashley in 2005. In her work, ceramics are grouped into types extrapolated from older research in the area (e.g. 'Urewe', 'Entebbe', and 'Rouletted' wares) based upon type-fossil aspects of their form (e.g. 'dimple bases') and decoration (e.g. presence or absence of 'roulettes'), and these types are examined in terms of their spatial distribution (Ashley 2005). However, there are major shortcomings in such type-variety approaches which cannot be ignored.

Dissatisfaction with this essentialist method gave rise to the 'attribute analysis' technique developed by Spaulding (1953), with a focus on variation within assemblages rather than differences between artefact types (Dunnell 1986). The fundamental distinction between type-variety and attribute analysis is the way in which 'types' are defined. 'Artefact types' are defined as "*a group of artefacts exhibiting a consistent assemblage of attributes whose combined properties give a characteristic pattern.*" Therefore, "*classification into types [should be] a process of discovering combinations of attributes favoured by the makers of the artefacts, not an arbitrary procedure of the classifier*" (Spaulding 1953:305).Under the type-variety method, the attribute combinations used to delineate a type are arbitrarily, often instinctively, chosen by the researcher, and only attributes deemed relevant by the researcher are considered in the construction of types. On the other hand, Spaulding's attribute-based classification uses all attributes simultaneously in conjunction with statistical analyses to suggest types arising from attribute clusters, notionally better reflecting choices made directly by the potters themselves (Spaulding 1953; Whallon 1972). As summarised by Dunnell, "*Spaulding makes it very clear that types are associations in the data, not in the mind of the archaeologist or in archaeological theory*" (Dunnell 1986:179).Therefore, classifications are created from observations made by the archaeologist and imposed on the data. Spaulding's 'types' are created by verifiable statistical analysis (replicable between researchers), rather than formed by individual generalisations (Dunnell 1986).

Inevitably there is a tendency within the type-variety approach to 'shoe-horn' variation into pre-existing categories. Ultimately this compromised classification creates a drifting or blurring of type definitions over space and time due to gradual, unquantified variation. Likewise, the treating of sherds as 'totalities' representing types rather than ranges of attributes, masks variation in individual elements of décor or technique across and within assemblages. Another flaw with the type-variety method is the need for a site to site comparison to validate a proposed type, its range of variation, and its historical relevance. There is therefore no way of checking consistency and range of variation of a 'type' within a single site. In an attribute-based analysis, "*historical relevance in … a properly established [e.g. statistical] type is the result of sound inferences concerning the customary behaviour of the makers of the artefacts*" (Spaulding 1953:305). This demonstrates the flexibility of Spaulding's method over type-variety; it is possible to define types from a single site rather than multi-site comparison. Attribute analysis also allows for extra fields to be added to the significant data as study develops. Types in the type-variety method are defined by a rigid set of criteria prescribed by the researcher; new attributes found to be of importance would require a complete overhaul and redefinition of types in light of the new data.

Some researchers have attempted to combine both the benefits of the type-variety method with the benefits of Spaulding's attribute-based analysis, but these approaches often exhibit flaws akin to the classic type-variety method. In Dunnell's (1971) critique of Sabloff and Smith's attempt to use an attribute analysis to redress the problems of type-variety methods, he notes that their result propagates the type-variety system rather than offering a solution. Their 'attributes' are arbitrarily selected and imposed on the data, rather than extracted from a full range of stylistic and technical attributes exhibited from the sherds themselves. In other words, Sabloff and Smith artificially chose which attributes were necessary for the definition of types, omitting consideration of other attribute categories (Dunnell 1971). Ashley's recent research in the Lake Victoria basin similarly attempted to address the problems of the past ceramic analysis methods employed in the region, which are rooted in the type-variety system, through the acquisition and analysis of new ceramic data. However, as with Dunnell's critique of Sabloff and Smith's work, Ashley's research may offer an improvement on past ceramic methodologies but the result still exhibits flaws in its grounding in a type-variety system of analysis.

3.1 A Critique of Previous Ceramic Analysis Methodologies Applied to Assemblages within the Lake Victoria Basin

Ashley's work was not the only ceramic research conducted in Uganda grounded in outdated interpretations of style and chronology. In 1987 P. Robertshaw conducted a survey in Western Uganda to identify Iron Age sites around Bigo and Ntusi, aiming to record and interpret surface ceramics (Robertshaw 1994). While his survey methods were commendable in their development of a suitable technique for densely vegetated tropical environments (see Chapter 4), his ceramic recording and analysis methodologies were flawed. Surface assemblages were characterised by fragmented potsherds, typically 2-3cm in diameter, with occasional appearance of lithics, grindstones, and iron slag. Decorated and rim sherds were selected for recording (which was carried out at the site of discovery) with the aim of designating surface sites with an LSA, EIA, or LIA chronology (Robertshaw 1994). The following attributes of the sherds were recorded: decorative technique, rim/lip profile, decorative motif, and placement of decoration. Later the placement of decoration was eliminated from the analysis as it was deemed impossible to determine the extent of decoration on fragmented sherds (Robertshaw 1994). This choice of attributes only considers decorative techniques and rim profiles to be of interpretative merit, ignoring all other aspects of the potter's *chaîne opératoire*, such as clays, tempers, and fabrics.

The consequent EIA and LIA chronological designations were based solely on the decorative techniques applied to the fragmented sherds, with typical 'Urewe' decorations implying EIA, and any kind of roulette decoration taken as a marker for the LIA. With the universal presence of roulette at all sites, despite the presence of Urewe Ware alongside the roulette in some instances, all sites were designated as ultimately belonging to the LIA (Robertshaw 1994). Problematically, this assumes that Urewe is the only EIA determinant in the whole Great Lakes Region (with dates for Urewe sherds from previous research somewhat dubious), and that chronological periods directly coincide with the disappearance and appearance of contradictory decorative techniques with no contemporaneity possible. Other reasons for differences in the distribution of decorative could relate to social, ethnic, or class groupings rather than chronological change (Gosselain 2008).

Based on these surface remains alone, Robertshaw concluded "*there was very little agricultural settlement of the Bunyoro-Kitara region during the EIA*" (Robertshaw 1994:115), with all roulette assumed to date post- 1100 AD, based on decorative comparisons with dates layers from Ntusi, and a seriation was constructed based on comparisons with the dated assemblages from other sites with results indicating that larger hilltop assemblages were younger, and smaller hill-slope assemblages were older (Robertshaw 1994). Aside from the methodological issues regarding the sole use of poorly dated decorative techniques as a chronological determinant, no attempt appears to be made to differentiate roulette techniques (e.g. KPR, TGR, CWR), which are subsumed into a single interpretative category. Interpretative assumptions imply that Urewe ceramics are always associated with agriculture to the point of being the only material evidence of EIA agricultural practice. Finally, these interpretations were based on surface remains alone; despite the flaws of direct dating based upon decorative associations, it seems intuitive that older sites would have a smaller surface assemblage as they are likely to be buried deeper in the soil, and hence less likely to become exposed than younger ceramics which lay closer to the surface to begin with.

Ashley's methods (2005; 2010) attempted to redress such shortcomings in previous research in the area, namely the failed attempt to develop a structured methodology for the analysis of ceramics (Ashley 2010). Her new approach was strongly grounded in older methodologies which regard the function of vessel as essential in delineating ceramic 'types', such as Henrickson and McDonald's (1983) theory based upon ethnographic research from the 1940s to the 1970s. But, by these researchers' own admission, "*considerable missing data*" for all functional categories led to their hypothetical ceramic categories employing a substantial degree of "*common sense*" due to sample sizes too small for statistical analysis (Henrickson and

McDonald 1983:630). Although their results indicated that observed ceramic forms were too varied to fit into functional classes, Henrickson and McDonald continued to apply these hypothetical class to broader case studies (Henrickson and McDonald 1983), thus generalising functional types of ceramic vessels worldwide irrelevant of time and space, which does not allow for the recording of independent cultural expression.

Referencing their results, Ashley suggests "*even in Great Lakes where poor contextual data hamper analysis, basic questions of function can still be attempted through ceramic morphology alone*" (Ashley 2010:139/141). Yet Dietler and Herbich's (1989) ethnographic study of the Luo potters of Kenya on the Eastern shores of Lake Victoria indicates that:

> "*Luo potters produce a varied repertoire of ceramic vessels. Over the whole of the Luo territory, the range of pot forms can be divided into thirteen general categories. However, in no single region will local versions of all thirteen form categories be made and used. Rather, each area produces and uses a distinct local subset of variants of about seven to nine of these forms to serve a roughly identical set of functions. Not only the general form category chosen to serve a given function will vary locally, but also the specific rendering of that form (including vessel sizes and proportions, neck and rim profiles, body curvature, etc). The total 'Luo repertoire' is a polythetic set which is neither uniform nor bounded: it overlaps with the neighbouring Luyia. Correlations among form, function, and local taxonomy are also extremely complex and exhibit considerable geographic variation*"
>
> (Dietler and Herbich 1989:154-155).

Dietler and Herbich (1989, p.158) go on to provide illustrations of complete pots with highly different morphologies sharing the same function in the same society, and McIntosh (1995b:211, Figure 3.39) also provides illustrations of ceramics, some of which have identical rim profiles and inflections yet very dissimilar functions. Rice (1996) highlights the difference between the 'inferred use' impinged upon vessels by archaeologist based on their suitability, and their 'intended use' and 'actual use', which may vary significantly (Rice 1996).

While these examples should make us sceptical about relying on vessel function to define ceramics, previous research in the Great Lakes region focusses on exploring ceramics in terms of food technology. Inherently, this approach ignores non-food related uses of ceramics, e.g. ablutions, tanning, rituals, etc. Despite this research being grounded in functionalist methodologies, it has been used and accepted uncritically as producing the divisive ceramic typology for the region.

Based on the results of new fieldwork and a reanalysis of some older collections, Ashley defines a number of temporally significant ceramic 'types' or 'wares', which were summarised in the previous chapter, the earliest chronologically being 'Urewe Ware'. Its presence at a site in the Great Lakes region, even from surface collections, is used to produce a solid c. 500BC – AD 800 proxy date for the site based on a handful of radiocarbon readings used to date entire contexts separated by vast geographic areas within the Great Lakes region (Ashley 2005; 2010). Despite a critique of past research into ceramics in the Great Lakes region necessitating the development of a new methodology, Ashley unequivocally accepts the older definition of Urewe as a useful 'type', describing it as:

> "*A well-made and highly crafted ceramic, Urewe forms typically include a range of bowls (closed mouth, hemispherical, open bowls/platters) and globular jars with everted necks, with an overall jar to bowl ratio of 60:40. Occasionally, other forms appear such as the beaker form from Siaya and carinated bowls from Buhaya; however these variants are rare and seem to be locally restricted. Rims are diagnostically bevelled, with multiple facets or flutes, whilst bases are sometimes dimpled, prompting the original 'dimple-based' name. Decoration is typically incised or impressed with a wide palette of horizontal banding, cross-hatching, hanging or*

> *pendant motifs, and 'covering pattern', whilst burnishing and/or slipping are also recorded*"
>
> (Ashley 2010:144).

The incidence of decoration is specified as 66-85%, with an additional (unpublished) distinguishing feature of a 'soapy' texture when you rub the potsherd (Ashley 2005; 2010; pers. comm).

As identifying features, "*well-made*" and "*highly crafted*" are vague qualitative aspects of the ceramic within a continuum, with no reference whether they match a researcher's gauging of their aesthetic qualities, or a skilled potter's recognition of their structural merit. It is not clear what aspects of the ceramic this applies to: its finish? Its firing? Its temper? The other aspects of this definition are wholly based on form and decoration; it appears that Urewe ceramics *must* exhibit bevelled rims, and no indication is given of the frequency of the "*sometimes*" dimpled bases in the collection. What of the percentage incidence of incised decoration in the absence of bevelled rims or dimpled bases? All these primary methods of identification imply that we would need the entire vessel for identification, and all these defining features could easily be masked by erosion and abrasion on the sherds. Under this previous methodology, which is aimed at fitting potsherds into clearly defined and restrictive types, undecorated and body sherds would be discarded as revealing little of use to the archaeologist. As an alternative method I suggest an approach which draws useful information from the potsherds without initially needing to place them into typological categories to be of use. In other words, an attribute-based analysis, which considers fabric and forming techniques as well as other salient features, would yield more data of use than this past typological approach.

Both Dietler and Herbich's (1989) work, and Gosselain's (1992; 2000) research indicate that the choice of temper, mixing of fabric and mechanics of forming of the pot itself are more useful in identifying shared manufacturing techniques as essential skills learnt by a potter during training than vessel shape and decoration, which are influenced by external interactions (Dietler and Herbich 1989; Gosselain 1992; 2000). Gosselain's observations are based on the Bafia potters of Cameroon, who are part of the wider Bantu linguistic family. Gosselain remarks of the extreme flexibility in production of ceramics at all stages of the manufacturing process from the procurement and processing of raw materials to the forming, decorating, and use of the vessel, whereby "c*hanges may be made at almost any stage of the chaîne opératoire without jeopardizing the whole system. Thus, technical behaviours offer room for manipulation, or choice, and may be approached as full stylistic phenomena"* (Gosselain 2000:190). This emphasises the flaw in past methodologies which focus on defining types based on a specific agglomerate of several attributes applied to a single vessel; in reality there can be no single package of attributes that create a single type. Instead each attribute must be considered independently and fluid to change at any time.

A higher number of jars to bowls in Urewe assemblages was added by Ashley as a new typological trait for Urewe. This may however simply reflect the shorter life cycle of jars than bowls, rather than an active decision by the potter. Other non-jar and non-bowl forms are remarked as being present in some assemblages (i.e. 'beaker' and 'carinated'), but instead of being investigated further these are forced into the Urewe typology without further specification of why they are classed as Urewe; perhaps based on associated decoration or rim form? Or is the connection simply a stratigraphic one? Rather than being investigated as a possible co-occurrence of two distinct pottery traditions coinciding temporally and spatially (which is perfectly feasible), these distinct forms are being recorded as 'varieties' of the Urewe 'type', akin to the outdated 'type-variety' method of ceramic analysis.

Ashley goes on to the 'function' of vessels to examine how consumption patterns have changed temporally, as per the aims of her research. In sum, from her results she uses vessel sizes described as suitable for serving 'familial or near kin relations' group sizes (and average of 18-19cm diameter for jars and 24-26cm for open bowls) as a distinguishing feature of Urewe ceramics (Ashley 2010). This implies the presence of a range of vessel size classes with a positive correlation to group sizes elsewhere in the archaeological record; however this distinction of size classes and interpretation of group size is based solely on Henrickson and McDonald's ethnographic study. They delineate 'serving and eating' vessel diameter size classes with the smallest vessels suitable for 'individual use', and slightly larger examples for 'familial or near-kin relation'. There is an unmentioned considerable overlap between the two categories: ‘individual use’ vessels have a diameter range of 10 -23cm, with an average of 14cm, whilst vessels suitable for serving ‘familial or near-kin relation’ groups have a diameter range of 8.4 – 95cm, with an average diameter of 24.5cm (Henrickson and McDonald 1983). Although descriptively the two size classes appear distinct, vessels between 10cm and 23cm could fall into either group, and at the lower end of the supposedly larger ‘familial or near-kin relation’ size class, vessels are actually smaller than the ‘individual use’ ceramics. Furthermore, by defining the function of Urewe vessels based on the size of their rim diameters in this way, there is an assumption that the ceramics are solely used in food consumption.

Ashley employed the original definitions of Urewe ceramics with her aforesaid modifications to re-analyse older ceramic collections and to examine new occurrences of Urewe ware arising from her primary fieldwork in the Lake Victoria basin at the sites of Entebezamikusa, Luka, Namusenya, and Sanzi in Uganda, and Haa, Wadh L’ango and Usenge 3 in Kenya. The resulting data was used to produce tables of decoration and vessel form as the key features in defining Urewe ceramics (Ashley 2010:145). In these tables the proportion of jars varies widely (25-100%) from the predefined 60% for Urewe assemblages, and the incidence of diagnostic decoration fluctuates below the expected rate of occurrence for Urewe pottery (Ashley 2010). Ashley interprets this as a response to “*very specific local practices of food/drink consumption*” rather than regional spatio-temporal patterning (Ashley 2010:145). An alternate explanation which could be offered is that the definition of Urewe pottery used is evidently too rigid to be applicable to all sites as it does not allow for divergences or temporal/regional developments from the ‘ideal type’.

Apart from the handful of excavated Urewe sites, it seems pertinent to mention the survey finds that have previously been taken as markers of EIA sites around the Lake Victoria basin: a single dimple base and bevelled rim was found at Mwiri Hill in Busoga; a single body sherd with channelling, cross hatching loops and dots was recovered from Nabigereka Rock Shelter in Mubende district; a single dimple base associated with sherds with scrolls or channelling and bevelled rims came from Waiya Bay, Entebbe; at Buloba Hill near Kampala there was evidence of channelling decoration and bevelled rims; and at Jinja golf course there was some cross-hatched pottery (Posnansky 1961b).It thus seems that most sites known as ‘EIA occupations’ have been invented based on a handful of 'Urewe' sherds, whose own definition is based on some dubious *fossiles directeurs*.

Ashley's reinterpretation of the Great Lakes ceramic sequence moves chronologically from the EIA Urewe ceramics to 'Transitional Urewe' ceramics, based on what she identifies as major stylistic change in ceramics at the EIA/LIA juncture, c. AD 800 – 1100 (Ashley 2010). This group of ceramics was newly recorded by Ashley as found exclusively on and around the Lake Victoria, and focussed in Uganda.

> "*Transitional Urewe ceramics have been identified by their superficial resemblance to Urewe, but are distinguished by shifts in morphology and decoration, as well as evidence of localised variation. Overall, there is a general simplification in ceramics from earlier Urewe, with a reduced number of vessel forms and less ornate decoration and formal embellishment" … "Absolute dates for these [Transitional Urewe] sites are limited but through a process of proxy dating using available radiocarbon dates and cross-referencing ceramics, a preliminary chronology has been developed that places these ceramics/sites in the ninth to thirteenth centuries period*"
>
> (Ashley 2010:149 - 150)

The five variants within 'Transitional Ceramics' identified by Ashley are 'Lutoboka Urewe', 'Lolui Urewe', 'Sanzi Urewe', 'Sozi Urewe' and 'Wakiso Urewe'. These are named after the type sites, though some co-occur at the same site. They were previously called the 'Lutoboka Group' of ceramics, but renamed 'Transitional Urewe' as a more geographically neutral name (Ashley 2010). With the resemblance to Urewe ceramics being described as 'superficial', the 'Transitional Urewe' ceramics need not be linked to Urewe at all, but rather should be recorded independently without attempts to fit them into the Urewe classification; while the group name 'Transitional Urewe' was ascribed as being 'geographically neutral', it is far from being analytically neutral. We need also keep some scepticism towards the tentative chronological interpretations offered for the Transitional Urewe sites – which for the most part have not been radiocarbon dated. The only two absolute dates associated by Ashley's research to sites of this period are a late 1st millennium AD determination at Sanzi, and 875±60 AD at Lutoboka (Ashley 2005); all other Transitional sites are simply dated by proxy and based on an assumption that they occur later than Urewe sites due to a perceived decline in forming and decorative techniques.

Ashley's interpretation of Transitional Urewe suffers the same pitfalls voiced for her study of Urewe pottery by being too focused on form, function and decoration. This interpretation suffers further with its divergence from Urewe Ware being the typologically distinguishing feature; decorations on Transitional ceramics are recognised by their minimalist replication of the 'striking and complex' patterns of Urewe ware, which still employ the 'essential themes' of incised banding and crosshatching but are "*less ornate and idiosyncratic in design and missing the habitual precision in their execution*" (Ashley 2010:152). The primary basis for the differentiation between Urewe and Transitional ceramics is a change in decorative styles, and this shift in decorative quality is projected as a shift in culture. However, Dietler and Herbich's work (1989) suggests even the most complicated and incised decoration, taken by Ashley to imply considerable investment in ceramic manufacture in the Urewe period, is "*remarkably fast and easy*" and "*the least physically demanding of all steps [of pottery manufacture] in terms of energy expended*" (Dietler and Herbich 1989:155). In their study decoration was found to convey little information at all, regardless of complexity, and is often changed by trivial social aspects such as one potter in a market wishing to differentiate their motifs from a rival's by increasing complexity of décor (Dietler and Herbich 1989). Such interpretations are supported by Gosselain's observations of Bafia potters in Cameroon; he records differences in decoration as linked to individual potters' production knowledge of decorative tools which can vary contemporaneously from workshop to workshop and village to village, rather than signifying temporal change across large geographic areas (Gosselain 1992).

Partly contemporaneous with Transitional Urewe, Ashley has recorded a total of 43 Entebbe ceramic bearing sites. All of these lie within c. 8km of the lakeshore, with a single absolute date and ceramic comparison giving a timespan of the 2nd

Millennium AD (Ashley 2010). Her typology for the ceramic is very restricted, with morphology being the key feature:

> "*Vessels are typically large to very large spherical or hemispherical bowls with bulbously thickened rims, sometimes enlarged to as much as five times the thickness of the body. Decoration includes rouletting, primarily twisted string roulette (although knotted strip roulette is occasionally encountered) on the lip, rim and body of the vessel, often in alternating bands to create a herringbone effect. Other diagnostic surface treatment includes the use of multi-toothed comb to roughly score the vessel interior, and create horizontal bands on the exterior. Some regional stylistic variants have been identified with 'Festoon' ceramics (Branchi 1960) now recognised to be a variant from the Entebbe peninsula where the comb tool is used to create impressed decoration rather than scoring. Another variant is Buloba Entebbe, which uses the same tool-kit of roulettes and comb, but applied to different forms, including straight-sided bowls with squared lips. These variants, however, are rare (three incidences), and the collections are often very small*"
>
> (Ashley 2010:154-155)

Once again, the dating of the Entebbe archaeological entity hinges on a single absolute date: a 15th century AD determination from Hippo Bay Cave (Ashley 2005). There is no indication that Entebbe ceramics are manifest at all sites at the same time, again making this proxy dating of sites problematic in chronological interpretations of the region. Ashley places a lot of weight on vessel size as the most distinctive feature of the Entebbe ceramics, however in her summary tables of Entebbe sherds from a variety of sites (see Ashley 2010:154), Entebbe vessels begin from 18cm in diameter; this same size class when present in Urewe and Transitional assemblages has been referred to as 'small familial consumption' size. In fact the entire range of diameters for Entebbe ware is recorded as 18-40cm; this hardly represents the 'consistent size' Ashley mentions in the restricted morphology for the ceramic. 'Buloba Entebbe' and 'Festoon' ceramics are listed as 'types' of Entebbe based on decoration, though with the lack of any other comparative feature these independent ceramics which existed alongside Entebbe should not be forced to conform culturally with the description of the Entebbe Ceramics. Yet again, Ashley defines Entebbe by its function, size and décor, as she has done for Urewe and Transitional Urewe, and forces other ceramic expressions to fit within these rigid categories.

Ashley's (2005; 2010) work on ceramics in the Great Lakes region of Africa successfully highlighted the need for a reformation of the outdated archaeological approaches to ceramics and a recognition of micro-regional styles around the northwest of the Lake Basin which had not yet been recognised in their own right. However even this recent research may be considered problematic due to methodological flaws inherent in the type-variety approach – however hybridised with the attribute-based method. Ashley began with recording attributes for each sherd. However, rather than defining types based on subsequent analysis of these recorded attributes, she merely attempted to fit the ceramics into previous types defined by past researchers under type-variety procedures (e.g. Urewe, Entebbe, roulette, etc.). One of Ashley's key attributes recorded for each sherd is 'cultural attribution' – in other words 'ware type' - which is then classified as Urewe, Entebbe, roulette, etc. often based on decoration alone. This is not a 'true' attribute of the potsherd, but rather a type-fossil imposition. Furthermore it ignores any information which may be drawn from the attributes of plain sherds (fabric, surface treatment, etc.), as decoration is considered the only culturally defining feature in her study. Just as in the Americanist research critiqued by Dunnell (1986: 153) sherds that do not fit the prescribed types are "*regarded as "noise" arising from imperfect expression*" (Dunnell 1986:153). The disappointing result of this research is that it can only quantify and analyse long-pre-existing types derived from antiquated culture-historical frameworks influenced by assumptions concerning their spatial distribution. New varieties may be identified, but these are merely the editing of the already flawed types into a search for 'differences' rather than 'change'. There still exists the potential to develop an adequate and universal methodology, which I am proposing to do. Although Ashley's research successfully indicated that there is still a wealth of new ceramic data emerging from the Great Lakes region, there remains a need to establish a more critical and detailed ceramic chronology for this region.

3.2 A Way Forward for Ceramic Methodologies in the Great Lakes Region

Ceramics are one field where technology (e.g. choice of clays, tempers, and forming) are readily discernible to the archaeologist from the material object and thus should be used to their full potential to yield a wealth of information, rather than focusing on a single aspect of the ceramic such as decoration or function. Past research failed by considering ceramic decoration not as an element of 'style', i.e. something which the potter selects from a range of available options (Gosselain 1992), but as a normative dictum of the times dictated by temporal 'fashion'. Some successful attempts have been made to apply ceramic attribute analysis to its full potential, notably by Susan McIntosh at Jenne-Jeno (1980, 1995b). Her research will serve to shape my methods, which will be described following a brief overview of Spaulding's (1953; 1954) stages of analysis, which played a large role in the development of McIntosh's own research design.

Level one of the attribute analysis method involves 'primary organisation of the empirical data'. Attributes of artefacts are observed and tallied, and 'attribute combinations' are defined to group artefacts based on a shared possession of specific attributes (Spaulding 1953). Level two elaborates on the data from level one by using the attribute counts to produce 'total frequencies' of each attribute. The relationship between 'attribute frequencies' and 'combination counts' is then examined to create 'attribute clusters' (Spaulding 1953). Level three adds the attribute of 'function' to the data of level two. Function is inferred from the attribute clusters by adding attributes which are not physical characteristics of the artefact, e.g. provenience or ethnographic analogy (Spaulding 1953).

In Spaulding's model, statistical testing identifies significant attribute clusters which are then used to define ceramic 'types', based upon an examination of 'expected attribute combination frequencies'. When compared to the actual frequencies of occurrence in the assemblage, the significance of difference between the actual and the expected is assessed with a Chi Squared test. "*Those attribute combinations which occur more frequently than compatible with the random association model are termed types*" (Dunnell 1986:180). Broadly simplified, if every possible attribute combination occurred at random, it would also occur evenly amongst the assemblage. In the real assemblage, if one attribute combination occurs substantially more often than other attribute combinations, rather than evenly as expected, then the more frequently occurring attribute combination must have been chosen by the potter as preferable. "*Spaulding's type thus is "real" in the sense that it represents pattern of behavioural choices in the data set*" (Dunnell 1986:180).

Although multi-site data is not necessary to define a type, data from other sites still has its uses. At one site statistics may not numerically support what looks like a 'type' due to deficient samples or lack of clear evidence of attribute clustering, but at other sites the same pottery may statistically be proven to represent a type. At the first site this may be an indication that the type may just be appearing or disappearing (Spaulding 1953).

Based on the pitfalls of earlier typological approaches, and on Spaulding's new approaches designed for Processual oriented research, McIntosh (1995b) offers a method for analysing West African ceramics which avoids the major problems of previous ceramic work, and is flexible enough to be used in East Africa to address a variety of different research questions. This approach creates a multidimensional dataset in which the archaeologist can search for and document more than one pattern of variability at a time, and also allows future work to modify and expand classification and interpretations (McIntosh 1995b). There are two necessary concepts inherent in McIntosh's work: *"(1) The major purpose of systematic artefact study is to document artefact variability, which, in the context of chronological and spatial patterning, is the source of all archaeological knowledge*" and *"(2) formal variability among artefacts of the same kind (e.g., pottery) can and does occur with respect to many different variables*" (McIntosh 1995b:130). To achieve the aims of McIntosh's ceramic work, each pot sherd must be recorded individually in terms of formal and non-formal properties to allow multiple groupings/classifications of the pottery to be drawn from the resulting dataset (McIntosh 1995b). I will not recount all of McIntosh's attribute recording fields in details here, they can be found in their initial presentation (McIntosh and McIntosh 1980), and subsequent adaptation (McIntosh 1995b). In summary, McIntosh recorded 16 variables for each potsherd; these were "*provenience (pit, level), fabric (type of paste, colour, presence of a grey core, presence or absence of surface colour mottling), surface treatment (presence and colour of slipping on the inner sherd surface, presence or absence of burnishing), decoration (twine rouletting, paint, plastic – i.e., motifs achieved by impressing or incising), rim profile (if rim sherd), size (diameter of rim if calculable, thickness), and presence or absence of surface blackening due to contact with fire*" (McIntosh and McIntosh 1980:114). Suffice to say, my choice of attribute fields is largely based on the McIntosh's research, with an aim to produce data which can be subject to Spaulding's method of statistical analysis to define ceramic types in the Sesse Islands.

In addition to McIntosh's attribute recording fields I include an attribute referred to as 'magnetism'. This was discovered by accident whilst analysing the ceramics in the field. It is common practice to break a small corner off the ceramic to determine the firing of the core of the vessel (oxidisation or reduction). Whilst using metal callipers to measure the thickness of each sherd it was noticed that some of the residue dust resulting from breaking parts off the ceramics was attracted magnetically to the callipers. Upon testing the sherds with a magnet some had the ability to be picked up or moved by a magnet alone; the decision was made to record this as an attribute as magnetism could be reflective of certain clays and fabrics, and may reveal some kind of spatio-temporal patterning. This trait of magnetism was present in both the fieldwork ceramics from the Sesse Islands and to a lesser extent in the comparative ceramic assemblages from mainland sites in the Lake Victoria Basin. Therefore the following attributes were recorded for any body sherd above 2x2cm, as intended to create the maximum amount of data for a statistical analysis aimed at defining attribute clusters, with fragmented sherds below 2x2cm in size weighed and discarded: sherd code; temper; fabric grain size; composition; sorting; rounding; thickness; Décor (recorded as tool used, action of application e.g. cross hatch, motif, etc. and placement of decoration, see Chapter 6 Figure 6.12 and Figures 6.63-6.69, and Appendix A1 Figure A1.5); burnish; slip; firing (of interior, exterior and core); magnetism; photograph; and comments. Additionally for rim sherds the following attributes were also recorded:

vessel form; rim form (see Appendix A2 for illustrations); rim angle (see Appendix A1); diameter; rim thickness; body thickness. Finally for base sherds the category of base form (see Appendix A1) and base diameter was added to the same trait list used to record body sherds. A full explanation of each attribute category and its recording methods is provided in the Appendix A1 at the end of this thesis. The proportion of the vessel preserved was not included due to the high level of fragmentation encountered in the Great Lakes assemblages during this study, which makes it impossible to determine the true size of the original vessel. The state of the break of each sherd was excluded as in most cases this was masked by erosion on the broken edges of the sherd. The erosional state of the surface was not recorded for every sherd as in general the level of erosion on the sherds encountered was high, though it was mentioned within the 'comments' recording section if the level of erosion was above average in comparison to other sherds from the same site.

Before continuing with the proposed procedure for recording and analysing ceramics, the term 'temper' must be defined in relation to this study. The Prehistoric Ceramic Research Group guidelines for ceramic analysis (PCRG 1992), although devised to aid the analysis of Prehistoric British ceramics, has been cited as the determinate source in other pre-historic ceramic analyses conducted outside Britain (e.g. see Lovell 2000 for application to ceramic assemblages from Jordan; see Mercader et al. 2006 for application to assemblages from Cameroon; see Akça et al. 2009 for application to the study of Anatolian ceramics). The PCRG recommendations on the definition of 'temper' are as follows:

> "*There are two types of inclusions found in any fabric – those which originated as part of the clay matrix when it was dug out of the ground and are called 'naturally included' (or the term 'naturally gritted' may be used); and those which were added by the potter are called 'temper' … If it is not possible to determine whether natural inclusions or temper are present, please say so.*"
>
> (PCRG 1992:13)

This also matches the definition of 'temper' proposed by Rice (1987a), though she goes on to further elaborate that natural clay sources may be chosen by the potter due to its natural presence of inclusions which remove the need for an artificially introduced temper, and that quartz sand specifically is hard to distinguish due to its frequent natural presence both in clay, and as an artificial temper. However, Rice's interpretation of what constitutes a 'temper' stems from interpretations of Latin American ceramics far removed from the African continent and likely to have been created by very different manufacturing traditions (see Rice and Sharer 1987; Rice 1987b). Other researchers (e.g. Shepard 1976) have suggested a more complex range of terminology in place of 'temper' to refer to the inclusions found in ceramics, or abandonment of the term altogether (see Arnold 1974; Orton and Hughes 1993). Under these definitions, 'grit', 'coarse sand' and 'sand', which form the majority of the inclusions recorded during this study, could not be regarded as 'temper' due to their potential natural occurrence in clay sources.

However, this conundrum of 'naturally included' and artificially added 'temper' is viewed differently by ceramic ethnoarchaeologists operating within Africa, such as the Swiss Archaeological and Ethnoarchaeological Mission (MAESAO), Gosselain (1995; 1998), Dietler and Herbich (1998), Livingstone Smith (2000), Kohtamaki (2010), and Wandibba (2011). Dietler and Herbich's (1998) records suggest nine tenths of all potters across the African continent add a temper to their clay, to create the correct 'feel' of a workable fabric which they were trained to identify. In a synopsis of Kenyan ethnoarchaeology, Wandibba (2011) records sand, grog, and crushed rock as the common tempers added to raw clays. Livingstone Smith (2000) lists the following seven tempers added to clay by the Faro in Northern Cameroon: dried and ground version of the raw clay, a different clay type, sand, crushed rock, grog, ashes, and dung. Furthermore Kohtamaki's (2010) study of Twa potters in Rwanda records potters from three of the four villages analysed as adding sand to the clay as temper, which is selected and gathered separately to the clay itself, with potters from the remaining village selecting a source of rock, and intentionally crushing it for addition to the clay. Considering how little evidence there is for a potter to use clay straight from the ground without the addition of some temper, regardless of its natural inclusion content, I believe coarser inclusions within my ceramics (i.e. grit, coarse sand, sand) are intentionally added to the clay, though it is impossible to state objectively that these are 'temper' and not naturally included without direct observation of the potters themselves. Therefore I will avoid the dilemma of determining true ‘temper’ from natural inclusions by categorising the degree to which the ceramic paste has been leavened with larger inclusions to constitute the three broad fabric texture types, listed as ‘fabric coarseness’ above (fine, medium, coarse). However, there is also one inclusion which may undoubtedly be referred to as ‘temper’ and that is ‘grog’, which is added to the clay. Therefore alongside analysis of the fabric coarseness/grain size, the use of grog temper will be analysed alongside the mineral inclusions of each pot sherd, as both could be intentionally added to the clay, and both are ultimately indicators of manufacturing choices involved in the manipulation of the ceramic fabric.

Having clarified what aspects of the ceramic fabric are being referred to as ‘temper’, we can return to the protocol for assessment of the ceramic data following the recording of the aforementioned attributes for each potsherd. The resultant records can be analysed and observed frequencies of attributes generated for each site, with associated statistical tests targeted to reveal attribute clustering in the data. Importantly, ceramic assemblages from previously discovered sites in the Lake Victoria basin will be re-recorded and analysed under the same method to identify correlations with my own data. To this end as part of my own fieldwork I have recorded and re-analysed the available ceramic assemblages from the sites of: Buloba Hill, Entebezamikusa, Hippo Bay Cave, Kansyore, Lolui, Luka, Namusenya, Nsongezi, Golwe, Lutoboka, Malanga Lweru, Kasenyi Bumangi, Sozi, and Sanzi, which had previously been recorded and analysed by Ashley (2005;2010) in the development of her regional chronologies.

The extensive amount of data produced from this attribute analysis necessitates a selection of certain attributes for statistical testing, as if all attributes were to be tested independently the amount of data produced would be too great to reproduce and analyse within this thesis. Therefore selection will be made of the attributes most suited to meet the aims of the current project; however as all attributes are initially recorded for each potsherd despite only certain attributes being selected for the current analysis, future ceramic research aimed at different goals would be able to access the full database and manipulate the data as needed. The intended outcome of this ceramic analysis is to attain as much information as possible about the societies producing, using and discarding the potsherds. Ethnographic studies may direct the researcher as to which attributes most appropriately yield this information. Gosselain's work on Cameroonian potters (1992; 2000) and Dietler and Herbich's work on the Luo potters of Kenya (1989) record that choice of clay source is individual to each potter, typically based on ease of access. Choices of clay types and mixing to create a workable clay is determined by the artisan's knowledge as passed down during apprenticeships and not the pedological structures of the clay, making the resulting ceramic fabric culturally sensitive (Gosselain 1992). In more recent work on Nigerian pottery, Gosselain (2008) records that while the same sources of clay may be used by different potters, the mixing of that clay in various proportions with various tempers (which he refers to as the clay 'recipe') remains distinctive of different groups of potters within the same region. Furthermore the methods of shaping and forming of the vessels (e.g. coiling, pounding, etc.) is taught during apprenticeship and is distinctive of social groupings, but the final shape of the vessel is not distinguishable from other social groups, and the rim is subject to individual variation (Gosselain 1992; 2008; Dietler and Herbich 1989). Therefore, as fabric appears to be the ceramic attribute most sensitive to change between manufacturers operating in different locales, the fabric grain size and composition (inclusions) will be included in a detailed statistical analysis. 'Temper' is also an element of the pottery fabric which will be considered for further analysis, with an explanation for what constitutes 'temper' in the current study given in the preceding pages of this chapter. With magnetism appearing to be a factor of fabric likely stemming from the presence of magnetic inclusions in the clay (based on a thin section analysis), it will also be included in the fabric statistical analyses.

Decorative tools used to adorn the ceramics will be considered as specialist knowledge is involved in the manufacture of some potters tools, though positioning and motor actions used in the decoration of pots appears readily changeable regardless of cultural association (Gosselain 1992; 2000; Dietler and Herbich 1989). Thus the specific lay-out of decoration and location of decoration will be recorded where possible but not statistically analysed; to do so may cause interpretive bias due to the fragmentation of archaeological vessels with complete examples rare. Using placement of decoration as a cultural indicator is majorly hampered by the presence of rims without the body of the vessel to determine the extent of decorative coverage, and ignores undecorated body sherds in the process. For rim sherds key attributes for analysis are the vessel form, rim form, rim diameter and rim thickness, as all have the potential to be uniquely manipulated by the potter during the manufacturing process (Gosselain 1992).

3.2.1 The Grouping of ceramic data prior to analysis

As it stands, the process of identifying patterns in the data would be difficult with such an array of variables in one place. Therefore the next stage of the ceramic recording process involved the organisation of raw data into categories prior to the in depth ceramic analysis. One of these large and varied categories which required some sorting was 'rim form'. Initially rim forms were separated into categories according to the manufacturing process, which produced: 'simple rims', which had not been thickened and bore no inflection; 'everted rims', which were constructed with an inflection and were sometimes also thickened; and 'thickened rims', which were thickened by the addition of clay but bore no inflection. Manifestations of these three types of rim could either be bevelled, rounded, squared, tapered, thickened, or uniquely shaped, which could then be angled as wide open, open, 90 degrees (straight edged), closed or tightly closed (ranked 1-5 on the sherd records; see Appendix A1 for illustrations).

During the sherd analysis in this study, 42 types of everted rim (recorded as E1-E42), 29 types of thickened rim (recorded as T1-T29), and 13 types of simple rim (recorded as S1-S13) were identified. From the recorded rim types within these three distinctions, groups were created based on similarities in form, e.g. everted rim types with a similar degree of inflection and shape of rim profile would be grouped together (see Appendix A2 for a full illustrative index of the variants within each rim form category). This resulted in 15 everted rim groups (EvGr1-15), 15 thickened rim groups (ThGr1-15) and 3 simple rim groups (SGr1-3). One example of each is illustrated in Figures 3.1 - 3.3. Note that rim form groups incorporate the angle of the rim for ease of analysis, i.e. open simple rims and closed simple rims are classed as two separate categories.

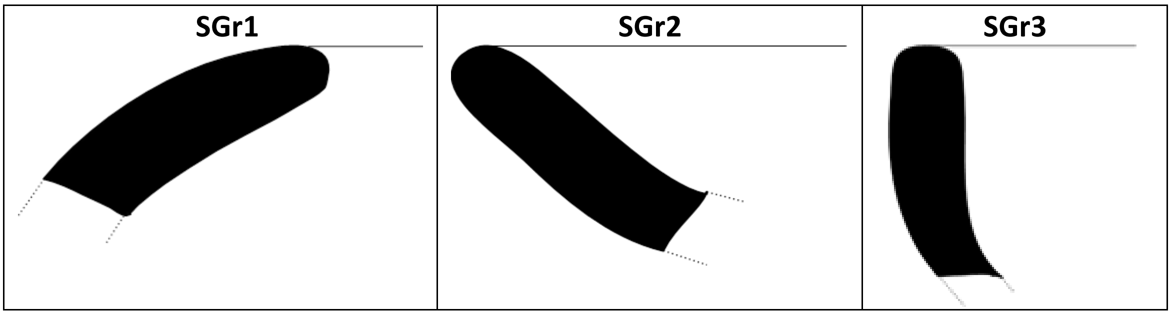


Figure 3. 1: Simple rim form groups recorded in this study (rim form groups incorporate angle of the rim in their distinction)

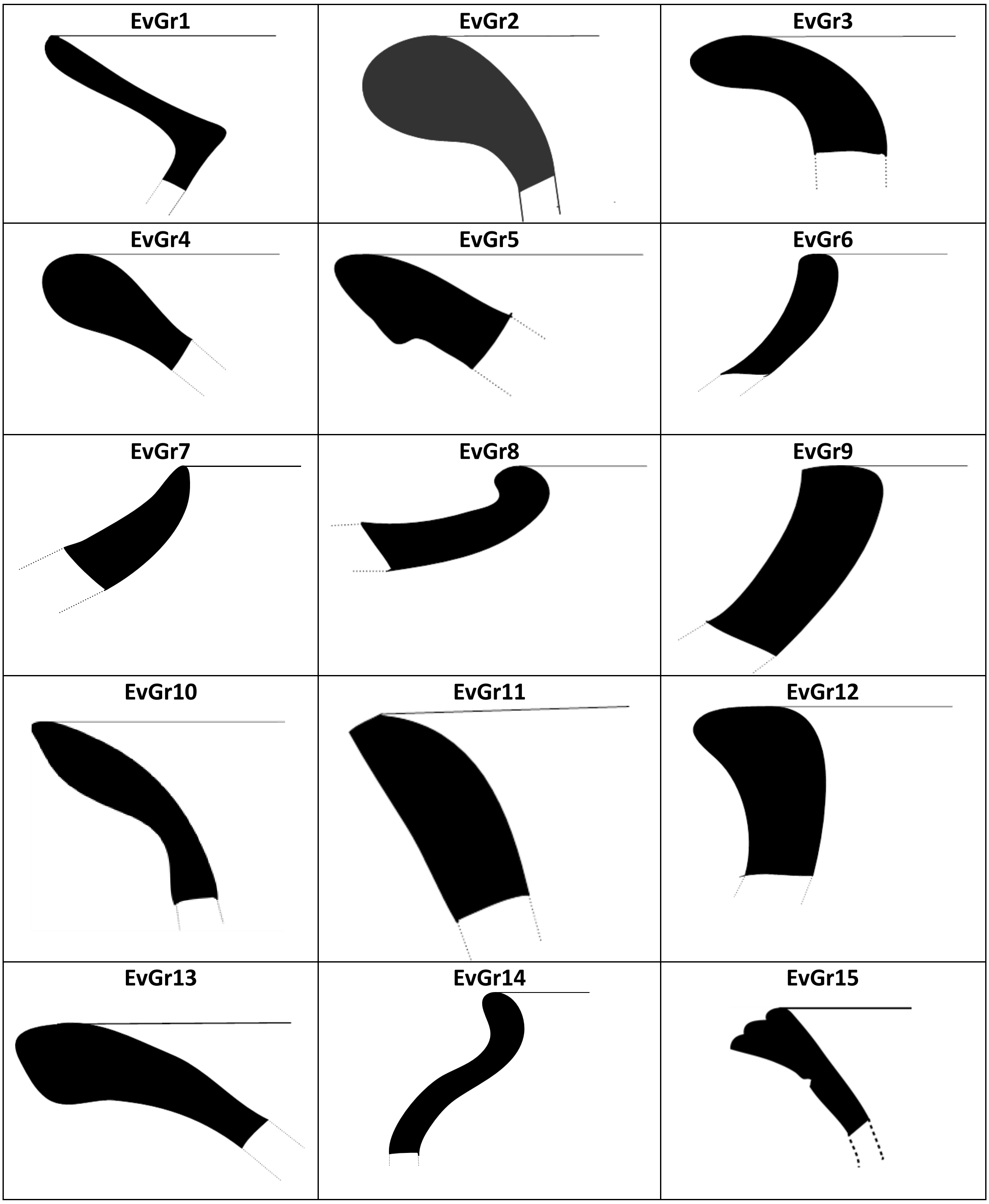


Figure 3. 2: Everted rim form groups recorded during this study (rim form groups incorporate angle of the rim in their distinction)

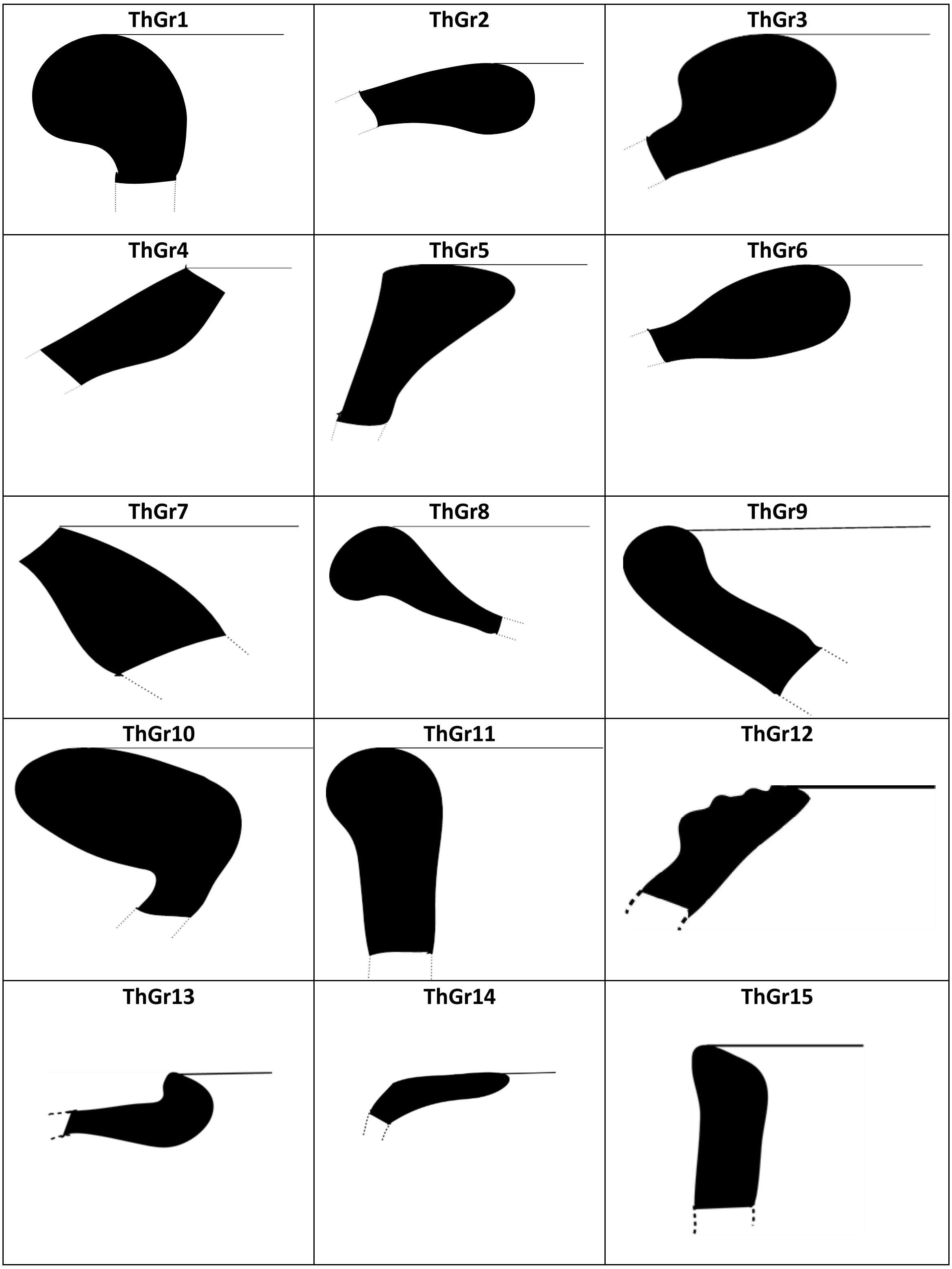


Figure 3. 3: Thickened rim form groups encountered during this study (rim form groups incorporate angle of the rim in their distinction)

The next sets of data requiring classification prior to statistical analyses were the measurements for ‘rim diameter’ and ‘rim thickness’. Initially these were strings of data from which size classes needed to be distinguished for comparison as to how many sherds/vessels fall into each class. The groups were identified as they naturally occur within the data by plotting each set of data on a frequency bar graph. When the strings of data are examined in this form (see Figures 3.4 and 3.5), within the continuous numerical data there is natural clustering in certain ranges which creates peaks at measurement values which occur more frequently, with obvious fall offs between amplitude. These peaks and associated fall-offs indicate the more numerous rim diameter and rim thickness measurements which are likely selective size categories favoured by potters, due to their frequent appearance and the diminished presence of vessels in intermediate sizes between the peaks; therefore the number of clusters also dictate how many size groups there are within the data. The resulting groups are listed in Tables 3.1 and 3.2. The value at 0 on both bar graphs appears high but can be ignored as it simply represents the number of sherds for which that measurement could not be taken (e.g. if the rim was too badly damaged for the diameter or thickness to be calculated). In future sherd records this may simply be marked as 'missing data' and excluded from further analysis.

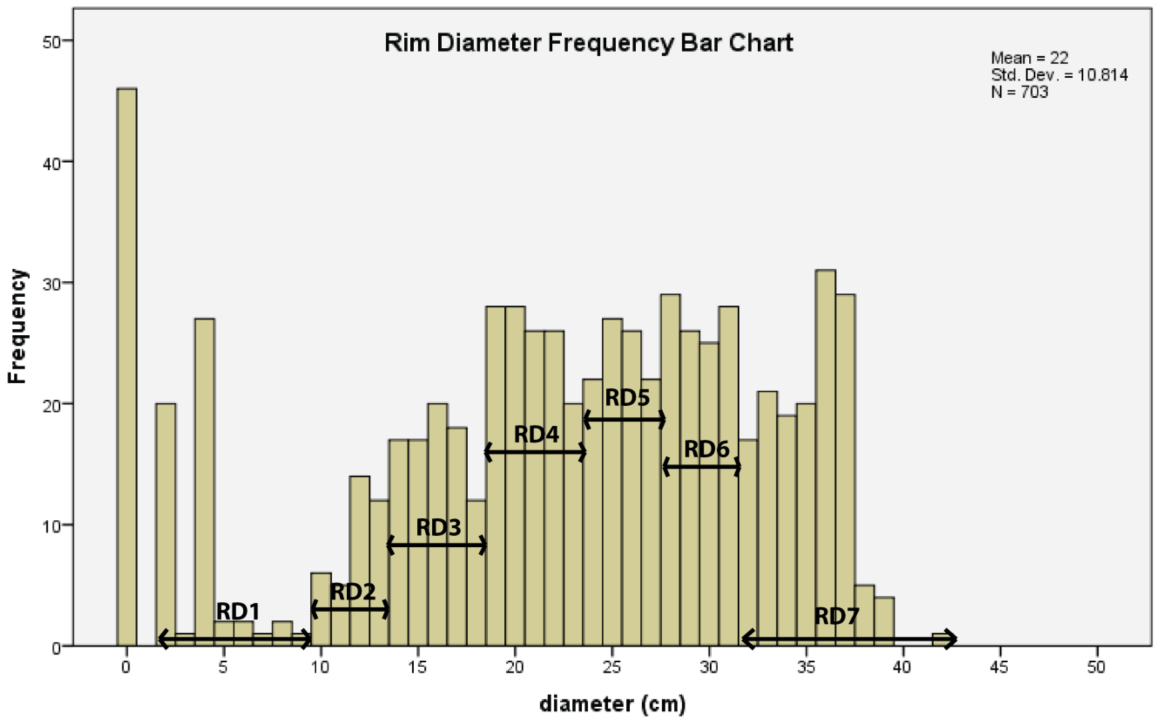


Figure 3. 4: A frequency graph of all rim diameters encountered in the field study with natural groupings in the data indicated on the graph (number of sherds = 703)

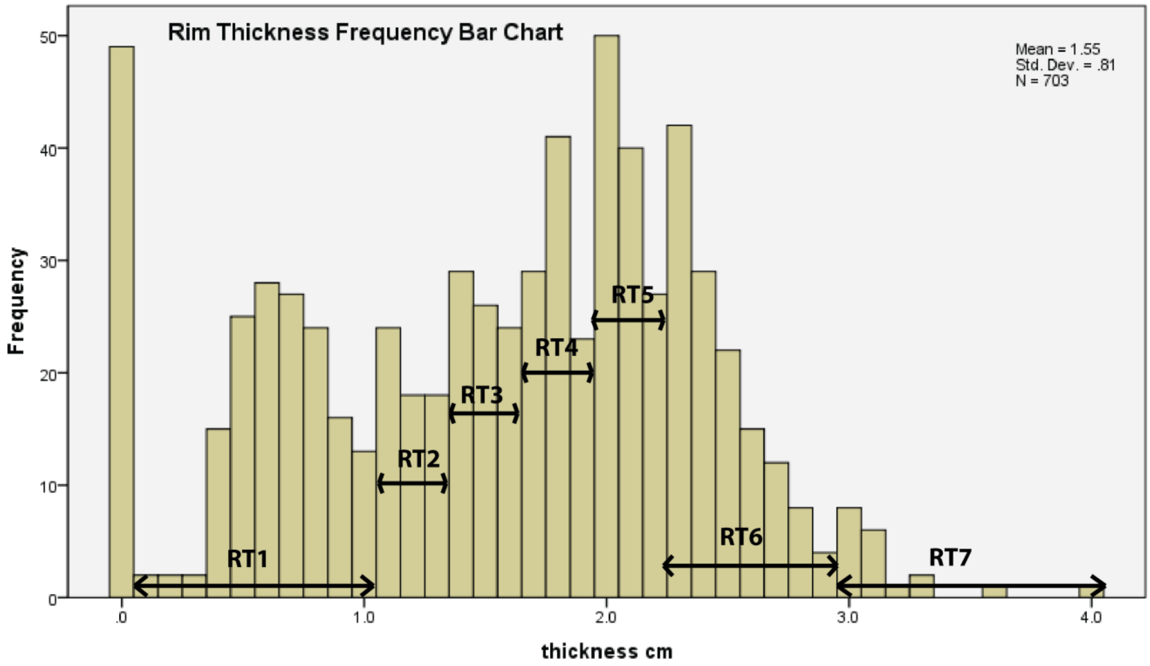


Figure 3. 5: A frequency graph of all rim thicknesses encountered in the field study with natural groupings in the data indicated on the graph (number of sherds = 703)

Rim Diameter	
Code	**Range**
RD1	1 - 9
RD2	10 - 13
RD3	14 - 18
RD4	19 - 23
RD5	24 - 27
RD6	28 - 31
RD7	32 - 42

Table 3. 1 Range of measurements for each rim diameter category

Rim Thickness	
Code	**Range**
RT1	0.1 - 1
RT2	1.1 - 1.3
RT3	1.4 - 1.6
RT4	1.7 - 1.9
RT5	2.0 - 2.2
RT6	2.3 - 2.9
RT7	3.0 - 4.0

Table 3. 2: Range of measurements for each rim thickness category

Following the establishment of groups for fabric type, rim form, rim diameter and rim thickness, each sherd was ascribed the appropriate group code for each respective attribute on its sherd record in preparation for the detailed statistical analysis.

3.2.2 Statistical testing of the ceramic data: Chi Squared Testing

Prior to a Chi Squared test of the ceramic data, as proposed by Spaulding (1954), clusters of potentially significant data were identified using basic statistical principles which rely on the mean and standard deviation of the dataset. Figure 3.6 indicates a typical 'Gaussian distribution' of data, with the mean/average at the centre of the bell-curve. From mathematic principles, 68% of the dataset occur within one standard deviation of the mean, and 95% of the dataset within two standard deviations of the mean. Any data-point lying outside this 95% reading (termed the 'critical value') is considered to be rare, i.e. it is not the result of random chance (Verschuuren 2013).

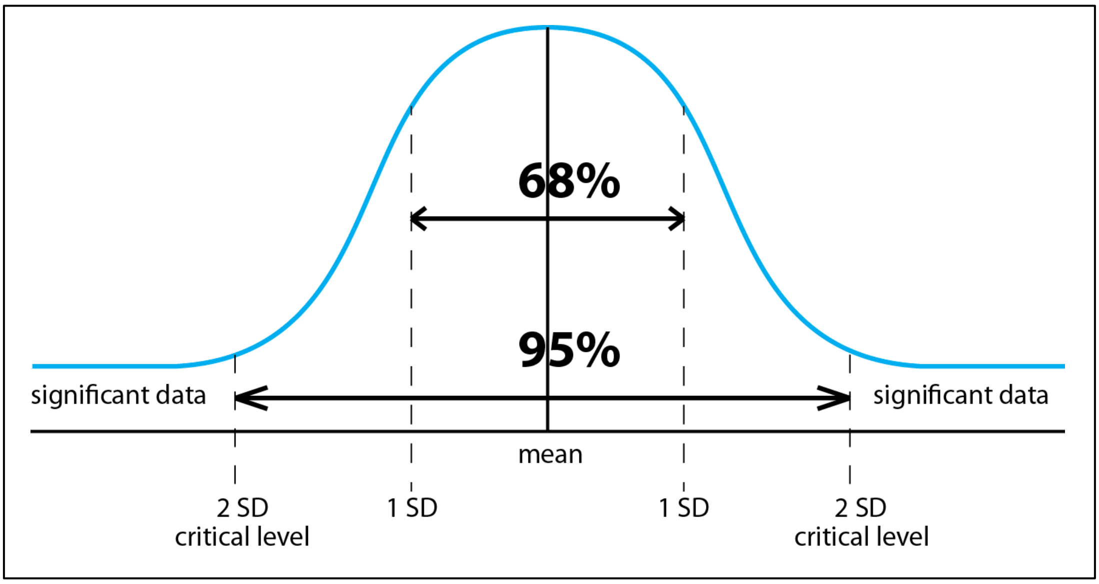


Figure 3. 6: statistical definition of what constitutes 'significant' or 'non-random' data

To exemplify this in ceramic terms, let us imagine the fabric recordings of the percentage of 'medium grained sherds' in an archaeological assemblage. We take the average percentage of medium grained sherds amongst the sites (e.g. 34.27%), and calculate the standard deviation of the dataset, which is based on the range of difference in the percentage of medium grained sherds between the sites (e.g. 22.32%). Based on Figure 3.6, any collection with a percentage of medium grained sherds which is less or more than two standard deviations away from the mean (-10.37% or 78.90% (these are termed the 'critical values')) is unlikely to have occurred by chance. Of course a negative percentage presence of an attribute is not possible, so any assemblage with more than 78.90% of medium grained sherds in its collection can be considered as having a higher than expected percentage based on the critical value, i.e. the potter producing that assemblage appears to be decisively choosing medium grained fabrics to produce his vessels.

These abnormal sites can then be subject to a 'Chi Squared' test to examine the assumption that the potter at the site is choosing to utilise medium grained fabrics over other grain sizes. The Chi Squared test compares the 'Observed frequencies' of an attribute (i.e. the number of occurrences in the assemblage) to calculations of the 'Expected frequencies' (i.e. the expected number of occurrences based on the average presence of medium grained fabrics at all sites), and ascertains whether any difference between the Observed (O) and Expected (E) counts is large enough to be 'significant' (i.e. it is unlikely to have occurred by chance or random selection and therefore must be a specific attribute chosen by the ceramic manufacturer).

The 'expected value' is calculated using a formula as indicated in Table 3.3. Using fabric coarseness as an example in the table, the 'observed values' (n1, n2, n3) are simply the counts of the number of sherds with coarse (n1), medium (n2) or fine (n3) coarseness within the site assemblage. The total of the 'Observed' (O) column is the total number of sherds from the site being analysed. The total column at the far right of the table gives the total number of coarse, medium, and fine grained sherds from all site collections combined. The 'Expected' (E) numbers for the site being analysed is generated by comparing the sample size (at the bottom of the 'O' column) with the total number of each fabric coarseness from all sites in the region.

From this, based on the regional evidence for the proportions of coarse, medium, and fine grained sherds at all sites, the 'E' value determines what proportions of each fabric coarseness would be present in the assemblage being analysed, based upon an even use of the fabrics around the region. Therefore the E-value is a function of the sample size being assessed, which removes the bias of some regional collections being larger than others. After the 'Observed' (O) and 'Expected' (E) values are generated, the Chi Squared test compares the two columns, and produces a 'probability', or 'P-Value' which determines whether the differences between the observed and expected values are coincidental (could have occurred by chance), or are 'significant' (determined by a P-value of less than 0.05), and uniquely associated to that site/assemblage for some reason, such as manufacturing choices. Examining the combinations of significant attributes occurring at individual sites and between sites allows us to determine which ceramic traits were selectively favoured by local potters, and the results can be used as a cultural indicator of localised or regional potting traditions.

Sample under analysis (e.g. site name)			
	O	**E**	**Total**
Coarse	n1 (no. coarse grained sherds in sample being analysed)	((n1+n2+n3)*Σn1)/(Σn1+Σn2+Σn3)	**Σn1 for all samples being compared (e.g. all sites)**
Medium	n2 (no. medium grained sherds in sample being analysed)	((n1+n2+n3)*Σn2)/(Σn1+Σn2+Σn3)	**Σn2 for all samples being compared (e.g. all sites)**
Fine	n3 (no. fine grained sherds in sample being analysed)	((n1+n2+n3)*Σn3)/(Σn1+Σn2+Σn3)	**Σn3 for all samples being compared (e.g. all sites)**
Total	**n1+n2+n3**	**sum of all above values (should equate to n1+n2+n3)**	**Σn1+Σn2+Σn3**

Table 3. 3: formula for calculating the 'Expected Values' (E) for the data, using 'fabric coarseness' as an example

3.2.3 Statistical testing of the ceramic data: Principal Components Analysis (PCA)

'Principal Components Analysis' (PCA) is a multivariate technique which aids the identification of patterns within multivariate data. This technique reduces the number of variables within a dataset to those responsible for creating variance between specimens (Baxter and Heyworth 1989; Morwood 1980; Prøsch-Danielsen and Simonsen 1988). While the Chi Squared test highlights patterning in the ceramic data in terms of individual attributes, a PCA carried out as a preliminary cluster analysis will be essential in highlighting how different attributes co-occur with one another within and between the assemblages, with the results indicating which ceramic attributes are responsible for creating patterning between sites throughout the survey area.

In a Principal Components Analysis, initially all variables (attributes) within the study are condensed/transformed to a smaller set of new variables, or Principal Components, which are constructed from a consideration of the initial larger set of variables, the mean and standard deviation of each variable, and their correlations with one another. These new Principal Components are designed to explain as much as possible of the variance, or patterning, between the ceramic assemblages in the study. The Principal Components are ranked according to their percentage contribution to the total variance in the dataset, with Principal Component 1 (PC1) responsible for the greatest amount of patterning between assemblages, PC2 responsible for a smaller fraction of the variance between assemblages, and so on (Prøsch-Danielsen and Simonsen 1988; Baxter and Heyworth 1989; Morwood 1980). These Principal Components are then plotted against one another on a series of scatter graphs to highlight clusters, or patterns within the data. To determine which of the initial set of attributes are relevant in the construction of each Principal Component we refer to the 'Eigenvector tables', which list both positive and negative 'loadings' for each attribute within each newly constructed Principal Component. Variables with high positive and high negative loadings for a Principal Component indicate how much that variable contributes to each axis on the scatter plots of Principal Components (Prøsch-Danielsen and Simonsen 1988). This method is best explained through practical application, and a PCA has been carried out on the survey and excavation data from the Sesse Islands in Chapter 6 parts 1 and 2.

Chapter 4: Fieldwork Methodology

To determine an adequate field methodology, initially the study area must be defined. With a study area selected, a technique then needs to be established for the identification and recording of sites via survey, and a method of excavation must also be devised for the sub-surface investigation of selected survey sites through test-pitting.

4.1 Choice of Survey Area

To determine an adequate field methodology, the study area must initially be defined. As discussed in Chapter 1 the Sesse Islands have been selected as the focus of this research, and they make an appropriate choice for several reasons. Firstly I am concerned with addressing the current use of an under-developed ceramic typology as a means for dating archaeological deposits located in the Lake Victoria Basin. The typological sequence in question is based largely on archaeological data acquired from sites on the northern lakeshore and from sites on Bugala Island (Ashley 2005; Ashley and Reid 2008; Ashley 2010), which lies within the Sesse archipelago and is geographically closest to the mainland shores from all the islands. This makes the northern lakeshore and the islands the natural choice for a study which critiques these previous dating methods and aims to examine the greater utility of an alternative attribute-based ceramic analysis. Secondly, the islands are recorded as central to an Interlacustrine trade network in the historic period, which has implications on the nature of economic and political interactions between the island and mainland populations, and has the potential to be examined archaeologically through the material remains. Thirdly, an even greater number of sources relate the Sesse Islands to all major cult activity taking place within the Interlacustrine area, with direct relationship to surrounding kingdom histories. This again may impact social interaction between the islands and the mainland, which may potentially impact the archaeological remains uncovered in the archipelago.

Previous research on the ceramic typologies has identified the Bugala Island assemblages as producing the longest and most continuous dated ceramic sequence in the region, as well as highlighting several distinct ceramic styles as new additions to a sequence which had remained unaltered for decades (McFarlane 1967; Ashley 2005; Ashley and Reid 2008; Ashley 2010). Despite this recent, comprehensive and fruitful collection of ceramics by Ashley, research in the Lake Victoria Basin has been unevenly distributed with little research conducted in the difficult and dense tropical lacustrine environment, choosing to focus instead on drier and easier to access grassland sites which have yielded information on the second millennium AD state societies further from the lake (see Phillipson 1977; Posnansky 1968; Robertshaw 1991; Ashley and Reid 2008; Ashley 2005; Robertshaw and Kamuhangire 1996; Reid 1996; Robertshaw 2003). Due to patchy previous research within the Sesse Islands, and the proof of a unique longevity of ceramic production and continual use on Bugala Island, the archipelago makes an appropriate focus for a field study targeting the manufacturing of ceramics in the Lake Victoria Basin.

The Sesse Islands are also interesting for their historic associations, which are introduced in Chapter 1, section 1.5. Several documents record a burgeoning lacustrine trade, with the islands producing canoes and being involved as a cross point in the trade of slaves, salt and iron from one side of the lake to the other (Kenny 1979; 1982; Mutoro 1998). These historic sources additionally make a number of interesting socio-political observations about the islanders and their interactions with mainland populations. The islands are also recorded in the ethno-historic texts as being the centre of all major cult activity in the Great Lakes region. While the association between the Buganda Kingdom and lubaale cult has been discussed in Chapter 1, other kingdom histories beyond the borders of Buganda detailing a spiritual figure named who was also ideologically connected with Lake Victoria. Zinza and Buhaya traditions from north-west Tanzania refer to this spirit as 'Mugasha'. This spirit Mugasha was believed to reside in '*Isheshe*', i.e. the Sesse Islands. Mugahsa is presumed to be the same lake spirit referred to as 'Mukasa' in the *lubaale* cults of the Buganda Kingdom (Berger 1973; Phillipson 1977; Roscoe 1911; 1907; Reid 2002; Kyewalyanga 1976; Gray 1910; 1935; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; 1991; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965;

Kenny 1977; 1982; Henige 1974, Bjerke 1969; 1981). Berger relates this association of Mukasa and other shared elements between the *lubaale* and Bacwezi ideological systems to stem from deeper antiquity rather than recent interaction (Berger 1973), which would suggest the idea of Lake Victoria and the Sesse Islands as a spiritually significant locale also stretches further back in time.

With the historic records detailing feuding and warfare between island populations and the Buganda Kingdom on the northern lakeshore (Kenny 1982; Johnston 1902), the Sesse Islands become interesting from the perspective of Coastal and Islands Archaeology, as not only do they offer a unique opportunity to examine the material culture of lacustrine islands in a landlocked lake (whereas up till now the focus of the discipline has been on marine islands), but there is evidence to suggest different phases of interaction with and isolation from mainland populations, with interaction in the form of documented trade and spiritual interaction, and self-imposed isolation by the desire to remain an independent political entity from the Buganda Kingdom.

Having explained the academic interest in focusing upon the Sesse Islands, I must now explain decisions concerning which islands were researched, as financial and time constraints made it impossible to examine all islands within the Sesse group. The extensive and recent archaeological work on Bugala Island means it was not considered for primary fieldwork in the current project. However, no archaeology had been carried out on the remaining islands aside from a survey conducted by Fagan and Lofgren in the 1960s. Although they recorded no archaeology of note other than occasional Stone Age remains across the whole archipelago, Reid and Ashley's re-analysis of Bugala Island has revealed a wealth of ceramic data which has proven important in the modification of the ceramic sequences in the Lake Victoria basin, and therefore Fagan and Lofgren's pre-supposition that the islands hold no archaeology beyond the Stone Age was questioned. With the lack of archaeological information on the remaining Sesse Islands to direct the enquiry it was necessary to turn instead to what locational information can be extracted from the twentieth century ethno-historic records which have been briefly touched upon so far in the preceding paragraphs of this chapter.

Accounts of the Buganda Kingdom on the northern lakeshore, which has been frequently referred to as the most politically complex and powerful pre-colonial kingdom in the Great Lakes region, mention an associated traditional belief system orientated around *lubaale* spirits. Public temples to these spirits were scattered throughout the Sesse Islands and the Buganda countryside, and though these temples are referred to as spiritually important for other socio-political units within the lake basin, the greatest amount of data refers to the connection between the island shrines and Buganda (Berger 1973; Phillipson 1977; Roscoe 1911; 1907; Reid 2002; Kyewalyanga 1976; Gray 1910; 1935; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; 1991; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965; Kenny 1977; 1982; Henige 1974). Due to the prolific number of temples on the Sesse Islands, Lake Victoria was named '*Nalubaale*' in Luganda (the language spoken by the Baganda within the Buganda Kingdom), which means 'mother of the *Lubaale*' (Kagwa 1934; O'Donohue 1997; Welbourn 1962).

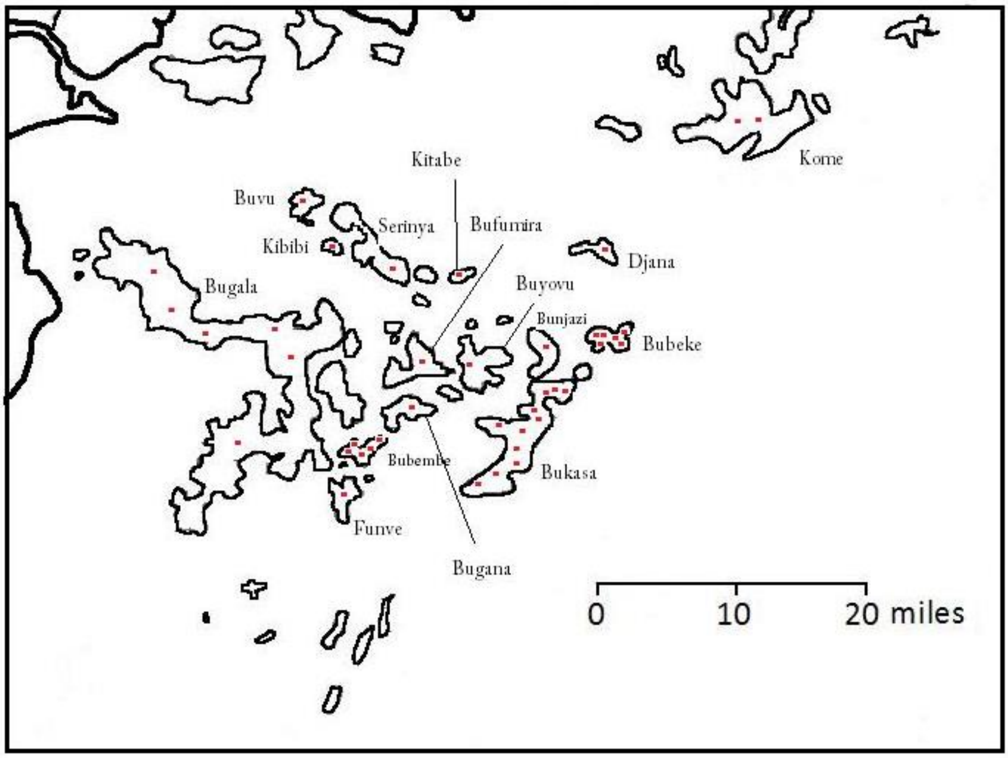


Figure 4. 1: Shrine locations within the Sesse Islands based on ethno-historic texts (specific locations on each island are arbitrary as texts do not include this information)

The map in Figure 4.1 has been constructed from collected ethno-historic data on the location of pre-colonial *lubaale* shrines within the Sesse Islands (see Roscoe 1911; Roscoe 1907; Welbourn 1962; Reid 2002; Kyewalyanga 1976; Kagwa 1934; Gray 1935; Amin 2006). Considering claims from the historic records that island shrines attracted mainland pilgrims from far and wide, it can be hypothesised that Bukasa, Bubembe and Bubeke Islands, with a greater number of traditional *lubaale* shrines, would be privy to a greater frequency of interaction with external populations. Furthermore, if we consider notions of isolation (which may affect the ability to interact with external populations), Bubembe Island has a high number of religious shrines *and* is located adjacent to Bugala Island, which has been previously researched and is the closest and most accessible island to the mainland populations. In contrast Bubeke Island also features a high number of religious shrines and yet is one of the most isolated islands in the archipelago due to its easterly extension into the lake. In terms of Coastal and Islands Archaeology theories which posit the isolation of islands as playing a factor in access to resources and trade, which reduces the variability and quantity of their material remains, a study of both Bubembe as an accessible island, and Bubeke as an isolated island would be interesting. Bukasa Island not only has the greatest number of pre-colonial shrines, but it is also the largest island after Bugala, and was historically documented as housing the shrine of the main overarching and far-reaching spirit in the regional cosmologies, Mukasa/Mugasha. From this we may assume that Bukasa has a greater range/quantity of resources and therefore can support a larger population, with a larger pool of labour explaining why the island was able to produce and maintain more shrines in the first place. Therefore Bukasa Island was also an obvious choice for new field research.

Thus the primary fieldwork unit comprised of Bubembe, Bukasa and Bubeke Islands in their entirety. While Bukasa and Bubeke were previously surveyed by Fagan and Lofgren (1966a; 1968), Bubembe was excluded from their study due to the dense and impenetrable vegetation, and has not been subject to any other past research. During the survey Fagan and Lofgren traversed the non-forested areas of Bukasa and Bubeke on foot. Both islands yielded Middle Stone Age lithic flakes, tortoise cores and rough picks, though none were recovered from archaeological contexts and instead found on exposed gravel along the central ridges of each island (Fagan and Lofgren

1966a). On Bubeke Island rows of piled stones were also recorded and interpreted as Iron Age field boundaries, though neither ceramics nor iron slag were recorded on Bukasa and Bubeke (Fagan and Lofgren 1966a). Despite Fagan and Lofgren's claims of a lack of archaeological material on Bukasa and Bubeke, they also recorded similar verdicts on Bugala Island, which has subsequently yielded a plethora of Early and Late Iron Age material (Ashley 2005; 2010; Reid and Ashley 2008). Furthermore, their survey was limited by vegetation cover, which may have changed somewhat in the past forty years to reveal more of the underlying ground surface.

When faced with a blank canvas, as is the case of Bubembe, Bukasa and Bubeke, a methodology need be devised based specifically on the environment of the islands in question. An MA ethno-archaeological project on traditional cult structures still operational within the Sesse Islands was undertaken preceding this PhD work (Amin 2007) and was used as a pilot study for the current research. Bukasa and Bubembe were among the islands visited during the pilot project with both recorded as densely forested (see Figure 4.2), which matches both Fagan and Lofgren's comments on their survey and early ethnographic records documenting the islands and lake shore as being among the most fertile and well watered land in central Africa (Fagan and Lofgren 1966a; Wilson 1880). The geomorphology of the Sesse Islands is based on granite similar to that found in the Buvuma Island group further north and on Lolui Island to the East of the lake. Soils derived from this granite are ferralitic, range in colour from yellow to red, and in matrix from coarse sandy-clay to coarse sandy loam. Nearer the shores and in depressions soil tends to become sandier due to erosional wash from higher elevations (Jackson and Gartlan 1965; McFarlane 1967). Ferralitic soils, also commonly referred to as lateritic, have a high iron and aluminium content due to the leaching of silica, as well as a highly acidic PH which is non-conducive to the preservation of organic materials such as bone (Kaurichev 1979).

Figure 4. 2: Typical vegetation found within the Sesse Islands, which consists of long grass and dense forest

Remote sensing or aerial survey was not possible as previous sites documented around the lake are defined based only on thin ceramic scatters, which are impossible to identify from the air. Furthermore, even if sites had some signature, the density of vegetation (see Figures 4.2 and 4.3) makes it impossible to employ aerial survey to identify archaeological structures on the ground. Therefore an archaeological survey in this environment could only be carried out on foot. While transects are typically the most efficient way of covering a survey area on the ground, the density of the tropical vegetation makes it impossible to mark and traverse linear transects on the Sesse Islands (see Figure 4.3). The presence of raised beaches on the shores of the lake suggests water levels have dropped rather than risen since the Late Stone Age (Robertshaw et al. 2003; ARMSY 1969; McFarlane 1967; Karega-Munene 2003; Phillipson 1977), and therefore a consideration of underwater archaeology is unnecessary as any sites from the LSA to the modern day are more likely to have been exposed from the lake rather than drowned by it.

Figure 4. 3: A typical path on Bubembe within the densely vegetated island environment, emphasising the lack of ground visibility encountered during survey

Using his research from North America to devise generally applicable survey strategies, Schiffer also recommends seeking exposed grounds in heavily forested environments, an approach which has been employed successfully by both Reid and Robertshaw in their East African surveys (Schiffer et al. 1978; Robertshaw 1994; Reid 2003b). Shovel test pits along transects are also a means of identifying the presence of archaeological material where the ground surface is not visible though this requires greater funds and labour force, and due to the density of the vegetation on the Sesse Islands this approach would still not be applicable for the majority of the survey area without clearing larger obstructions by the intensive removal of vegetation; this again would be costly, requiring a large labour force. Therefore after assessment of a number of survey techniques (Bower 1986; Rupeé 1966; Sullivan et al. 2007; Plog 1978; Chartkoff 1978; Nance and Ball 1986; Giblin 2010; Schiffer et al. 1978; Robertshaw 1994), the survey strategy for the current project followed Schiffer and Robertshaw's recommendations, focusing on already exposed ground on the islands.

With the boundaries of the survey universe limited by the lakeshore, all available paths (regardless of size) were traversed and any exposed ground visible from the paths were investigated. To aid the sourcing of archaeological materials local residents encountered along the survey route were consulted as to their knowledge of potential archaeological remains on the islands which may otherwise be missed (e.g. hidden clearings in the forest or private fields with access through the owner's land). Several sites recorded in previous research around the lakeshore are located in caves and rockshelters, and therefore local knowledge was also essential in sourcing caves and rockshelters on each island for investigation. Typically sites were located within fields, and less frequently in road/path cuts and patches of ground exposed by erosion. None of the caves or rockshelters encountered revealed any archaeological materials. Bubembe Island featured the densest forest vegetation, and therefore only an estimated 5-10% of the ground could be surveyed. With a greater level of development on Bukasa Island ground visibility was greater, allowing for 10-15% of the island to be surveyed. Bubeke Island was the least developed; however the slightly rockier geology and shallower soils meant less vegetation coverage and greater exposure from erosion, allowing c. 20% of the island to be surveyed.

Another factor to be taken into account when planning to survey a densely vegetated tropical environment is the annual weather patterns. From the pilot study I ascertained that a large part of the exposed ground where archaeological materials may be visible on each island is agricultural fields which have been cleared of vegetation in preparation for planting, or fields where crops have recently been harvested to leave the exposed soil below. In the Sesse Islands the crop cycle follows the biennial rainy season, with ground cleared and prepared for sowing at the end of the dry seasons (June- August and December – February) with ploughing and planting taking place at the beginning of the wet seasons (September – November and March - May), and crops harvested at the end of the wet season. Therefore at the end of the dry seasons/start of the wet season the largest amount of ground will be exposed on the islands and this was factored into the survey design; if survey takes place too far into the wet season archaeological finds may be covered by mud slicks due to surface water run-off. To emphasise this point, Figure 4.4 and 4.5 both represent agricultural fields where archaeological sites were recorded due to a large abundance of pottery visible on the ground surface. These photographs were taken 4 months after the survey was conducted, and clearly the ground surface and any archaeological material had become completely hidden under the dense and rapid plant growth which occurs with every wet season in Sesse Islands.

Figure 4. 4: a rice paddy on Bubembe Island where an archaeological site was recorded prior to crop sowing and growth

Figure 4. 5: a banana and cassava plantation on Bukasa Island where an archaeological site was recorded prior to vegetation growth

A research permit was acquired from the Uganda Council for Science and Technology, alongside a letter from the Uganda Museum addressed to the District Commissioner of the Sesse Islands outlining the intended research and its benefit to potentially enhance a greater understanding of the history of the Sesse Islands and its people. The District Commissioner was met at the administrative headquarters of Kalangala District on Bugala Island; at present day the Kalangala District incorporates all islands in the Sesse archipelago. The DC then assessed the research aims of this project and provided a letter targeted to the Local Chairmen of Bubembe, Bukasa and Bubeke Islands explaining his awareness of our research and advising assistance to be provided in the way of access to survey all land within the islands.

Specific criteria for defining what density and variety of archaeological material constituted an archaeological site were defined in the field as the nature and extent of the archaeological material on Bubembe, Bukasa and Bubeke was previously unknown. From previous work conducted by other researchers on Bugala Island and around the lakeshore it could be assumed that ceramics would be the most frequently encountered archaeological material in the Sesse Islands. Although typically in survey elsewhere in east Africa sherd density is used to define a site (Giblin 2010), less emphasis is placed on those sherd densities here as assemblages on Bugala are small in size compared to mainland collections, and theories from Coastal and Islands Archaeology suggest that island assemblages can be smaller than their mainland counterparts due to differential access to resources (Fitzhugh and Hunt 1997; Erlandson 2008). Furthermore, estimates of site sizes are hampered by the dense vegetation; with the majority of sites located in artificially cleared agricultural areas and homesteads it is unlikely that site boundaries correlate with modern areas of vegetation clearance (Robertshaw 1994). Thus extrapolating sherd density which has been taken to denote a site in past mainland surveys and applying it to the Sesse Islands would not be appropriate. Therefore during survey any density of ceramics above two sherds per ten metres square, with a minimum of ten sherds in total, was taken to constitute a site. Considering the aforementioned lack of other sources of archaeological evidence in any previous research on the Sesse Islands (Fagan and Lofgren 1966a; 1968), the additional presence of any material other than ceramic (e.g. iron tools, iron slag) was also used to define archaeological sites within the study region. Thus a scatter of ceramics with a density lower than two sherds per ten metre square but the additional presence of another type of material remain other than ceramic would have also been recorded as an archaeological site. All scatters of archaeological material which met the criteria for a site were recorded by GPS to aid mapping and location of the site in future research (see Appendix A3 for GPS readings).

Theoretically, the lack of previous research in the study area makes it important to collect any available surface material. However, transport between the islands was only available in the form of wooden boats, which were typically overloaded and contained little free space; the cost of private boat hire was beyond the financial constraints of this project. Within the islands, the absence of motor vehicles aside from occasional motorbikes on Bukasa and one motorbike on the whole island of Bubeke meant the majority of travel was done on foot. Therefore total collection of surface materials was unfeasible; hence only decorated ceramic sherds, rims, bases, and handles were taken during surface survey for further analysis, and undecorated sherds were counted, weighed, recorded and discarded at the location of discovery. Decorated sherds were the focus of the survey ceramic analysis, as previous ceramic typologies rely on decorative techniques as the typological indicator; selecting decorated sherds allows us to examine whether the use of decorative techniques is in fact an appropriate means of dating ceramics, and also produces sample data on a variety of other ceramic attributes such as fabric types. All ceramics taken for analysis were subject to the attribute-based method of ceramic analysis (see Chapter 3). Slag was recorded if present and small pieces were sampled if available, though large blocks could not be collected due to problems of transportation. Surface bone was recorded but not sampled; due to the problems of organic preservation in the ferralitic soils of the archipelago it is likely that all surface bone was modern rather than archaeological.

Due to the potentially mixed provenance of surface finds and the inability of surface remains to provide data on temporal change at archaeological sites, test excavations were an essential secondary stage in the survey process to determine how the archaeology differs beneath the ground, and to assess stratigraphic integrity of the materials. Within the timescale of this project two sites were selected from each island for test excavations, and a 2x2m trench dug at each site to ascertain the nature of the sub-surface deposits. Initial choice of potential excavation sites was based on those with a higher than average surface artefact density (13 sherds per 10 metre square) and/or some artefact diversity (e.g. the presence of ceramics and iron slag). The range of sites meeting this criteria were then narrowed down further through an examination of the land use and vegetation at the site; it would be useless to excavate highly disturbed contexts such as continuously ploughed fields as the lack of stratigraphic integrity makes it impossible to examine temporal change, and it would be unfeasible to excavate areas requiring extensive vegetation clearance. Suitable locations for excavation included homestead compounds where vegetation is cleared but land is left undisturbed, or footpaths where the width of the path is large enough to allow a trench to be dug in the undisturbed ground without it being a hindrance to passers-by.

During excavation the single context recording method (MOLAS 1994) was used, as it has been successfully implemented in the Great Lakes region by Giblin (2010), Reid (research conducted for several decades), and Ashley (2005), where the method was found to maximise the recovery of data while minimising time expenditure. Due to the lack of organic preservation soil samples were not collected for flotation, and charcoal was not sampled unless derived from a sealed, charcoal rich context during excavation. All soil was sieved to recover small non-organic finds and to test for the possible presence of fish and shell fish remains, though these were expected to be absent in the soil due to soil acidity. Within coastal and island contexts large proportions of fish bone and shellfish remains are often lost when sieving with a mesh larger than 6mm, exemplified by the presence of freshwater mussels at archaeological sites in Mississippi measuring only 7mm in size; therefore in the current project a decision was made to use a 5mm mesh size whilst sieving (Woodman 1981/2; Erlandson 2001; Peacock 2000). All ceramics over 2x2cm in size uncovered from excavation, including undecorated body sherds, were analysed under the attribute-based method to gather a complete picture of temporal change in the ceramic assemblage (see Chapter 3).

All sherds collected during survey were given a code based on the site name and sherd number from that site (e.g. BBK 1/20), and in the case of excavation this code also incorporates the context of recovery (e.g. BBK 1-11 002/60). All sherds re-analysed during the comparative analysis retained the codes ascribed by previous researchers. Once all the sherds had been ascribed their code, the attributes were recorded as detailed in the methodology in Chapter 3. Following the recording of the attributes for each sherd, attribute percentages were calculated for each site to allow for comparison of data between sites of different sizes; sherds and rims were recorded separately for each attribute at this stage. These site percentages were used to create attribute frequency tables for both undiagnostic sherds and rim sherds to indicate how attribute percentages compare between sites. At excavation sites these percentages were calculated individually for each context to allow an analysis of change over time. Attribute frequency tables were not created for bases, as bases were so rare (a total of 4 bases were recovered from only four of the sixty archaeological sites encountered) that there could be no significant basis of comparison.

Having followed the fieldwork methodology laid out in this chapter, thirteen archaeological sites were recorded on Bubembe Island, thirty-nine archaeological sites and one currently functioning shrine site were documented on Bukasa Island, and eight archaeological sites were recorded on Bubeke Island. From these sites, two were selected from both Bubembe and Bukasa Islands, and three from Bubeke Island, for sub-surface investigation. The following chapter gives an overview of the nature of the archaeological materials encountered during the survey and excavation, providing comments on the range of materials encountered and assemblage sizes within the islands and in relation to the surrounding lakeshore sites. Chapter 6 leads on to provide an in depth attribute-analysis of these ceramics, with attention given to determining patterns in the ceramic data which elucidate the social, political and economic interactions within the Sesse Islands.

Chapter 5: Survey and Test Excavation Results

Finds densities in the Sesse islands are not particularly high. The average size of the analysed collection (rims and decorated sherds) from survey sites was only 21 sherds (it must be noted that plain sherds were not considered here for the logistical reasons stated in Chapter 4 and this number is not reflective of total assemblage size). Excavations produced average assemblages of 275 sherds per 2x2m trench. These collections may appear small to people not familiar with the archaeology of the Lake Victoria Basin; however this is an area where there is a low density of material culture. From Ashley’s work on Bugala Island (2005; 2010), the average assemblage size of the excavated sites was 273 sherds, and thus my fieldwork excavations match the assemblage size patterning found in the Sesse Islands so far. The re-analysed mainland lakeshore collections were larger in comparison with an average sample size of 713 sherds per site, though these assemblages are often derived from larger excavations than single test pits. Furthermore, only three of the eight re-analysed mainland sites have assemblages larger than the average for the Sesse Islands. Therefore, rather than disregarding the island samples as too small, it may be more appropriate to consider why sample sizes are small throughout the entire region. The island and lakeshore populations may be mobile with sites only representing annual seasonal habitation, or a lack of island resources may limit population size or the production of ceramics. These numbers also only consider the presence of ceramics, though potentially there could have been a range of organic objects (e.g. gourds, wooden bowls, bone, animal skin containers) which have been lost to the archaeological record.

In Chapter 4 I detailed a fieldwork survey methodology which targets both naturally and artificially exposed ground due to the problems of low surface visibility. During survey on Bubembe and Bukasa Islands a large scale oil palm planting project was encountered, which had originally been instigated on Bugala Island and has since been rolled out over the remainder of the archipelago. Whilst in the future this will disrupt the archaeology of the islands and may limit future excavation, land clearance associated with it greatly aided the present survey. The project was encountered at a stage where grass had been removed to expose the ground surface, and 30cm x 30cm pits for planting had been dug at regular 5m intervals across the grassy hill slopes, resembling shovel test pits (see Figure 5.1). During survey every pit was checked for archaeological remains, and some revealed underlying sites which would have otherwise been missed. Aside from this, most sites were located in ploughed farmland, beaten earth courtyards and larger footpaths which had been cleared of vegetation (see Figure 5.2). Other artificially exposed ground which was investigated includes a small aircraft landing strip on Bukasa (see Figure 5.3).

Figure 5. 1: Oil palm planting pits resembling shovel test pits. These were found in select areas of Bubembe and Bukasa Islands

Figure 5. 2: exposed ceramics located in the surface of a path on Bukasa Island

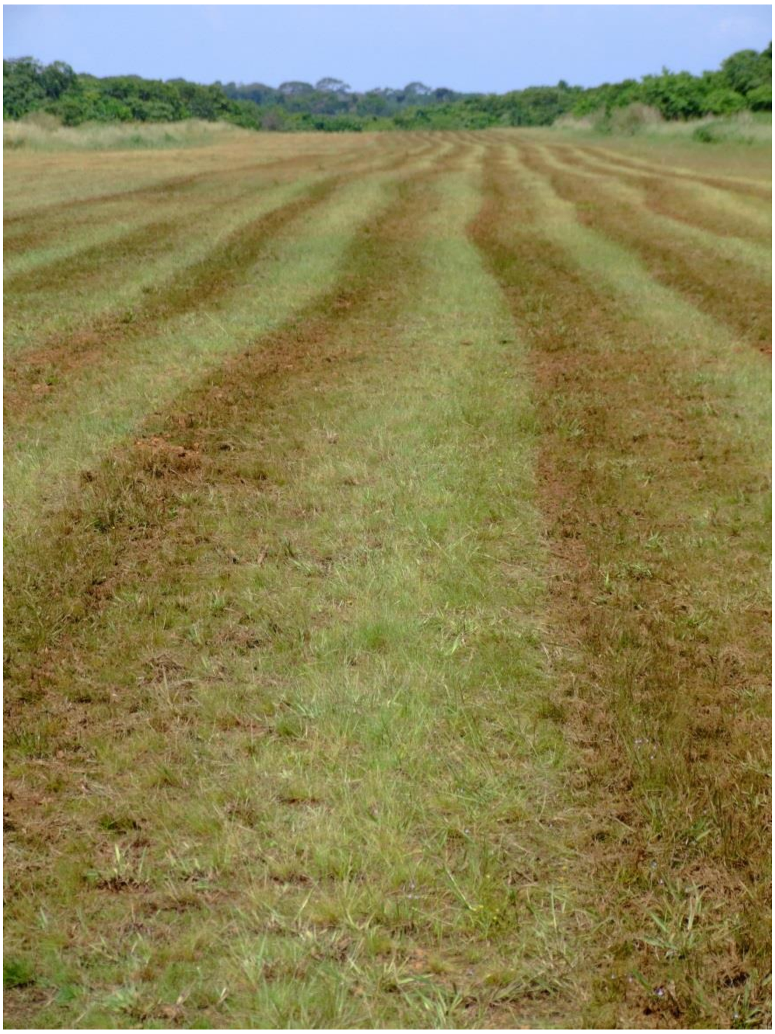


Figure 5. 3: exposed ground in the short grass of a local aircraft landing strip on Bukasa Island

5.1 Bubembe Island Survey

Bubembe Island measures 5km x 3km, with vegetation consisting of patches of dense forest interspersed with farms, and hill ridges and slopes covered in tall, coarse grass. Ground visibility in this environment is extremely low, and further hindered by rapid vegetation growth following the biannual rainy seasons. The survey on Bubembe successfully identified thirteen archaeological sites (sites BMB 1 to BMB 12) with 336 surface ceramics collected, and the occasional presence of iron slag recorded. BMB 3B was the 13th site, which was geographically close enough to BMB 3 to be considered part of the same site, but distinct enough in its surface assemblage to be recorded as separate. Figure 5.4 indicates the site locations on a map, with each point scaled to match the surface assemblage size. Clearly there is a cluster of larger sites in the east-central part of Bubembe, with no sites in the west of the island. The lack of sites in the west may be the result of denser vegetation masking underlying archaeological material rather than historic settlement preferences.

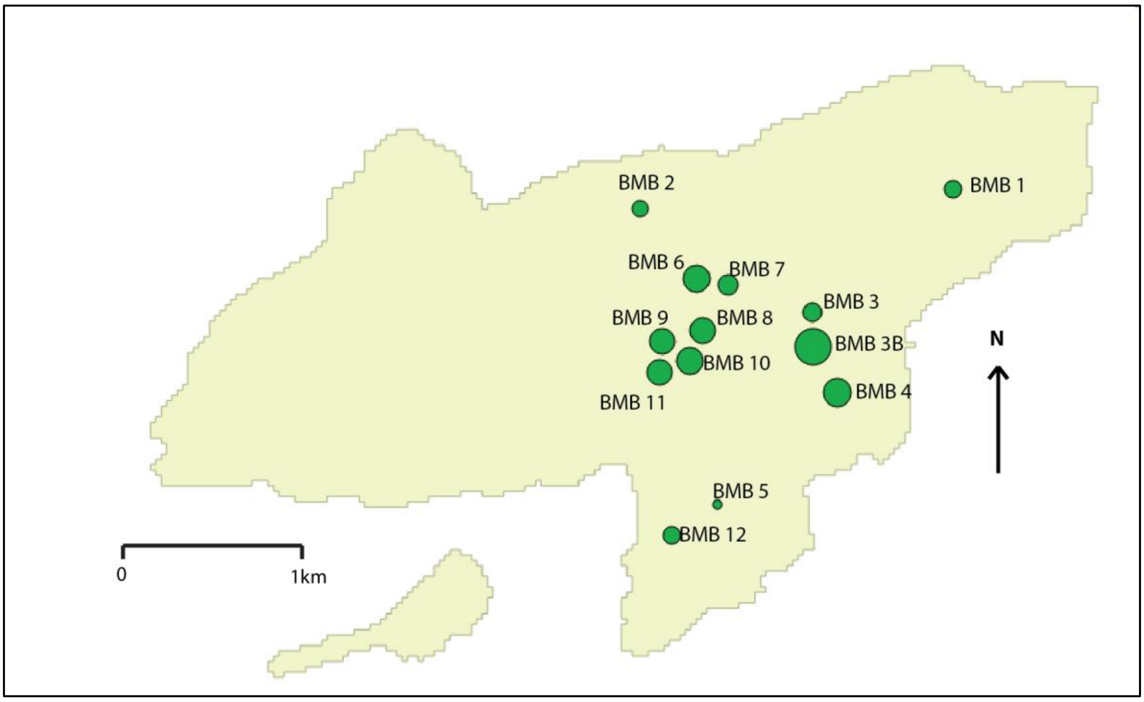


Figure 5. 4: Survey Site locations on Bubembe Island with points scaled by assemblage size.

Table 5.1 lists the assemblage sizes and non-ceramic finds from each site; all iron slag on the island came from site BMB 9. The bone from sites BMB 3B and BMB 9 is likely to be modern due to poor organic preservation in the acidic island soils which removes bone from the archaeological record; the same may apply to the shell found at BMB 3. The metal blade and bar recorded at BMB 11 were modern in their appearance and unlikely to have any time depth. Spatially all sites were located on hilltops or upper hill slopes bar two, which were located mid slope. Only three sites were located within three hundred metres of the present day lakeshore, with the remainder located between eight hundred metres and two kilometres from the lake, suggesting the shore was easily accessible from all sites. One rockshelter was located based on local knowledge, but it did not contain any archaeological remains.

Site name	Number of Sherds	Sherd density per metre	other remains
BMB 1	40	0.4	
BMB 2	12	0.4	
BMB 3	21	0.21	shell
BMB 3B	121	2.42	bone (pelvis fragment)
BMB 4	45	0.75	
BMB 5	10	1	
BMB 6	96	0.96	
BMB 7	30	0.75	
BMB 8	67	1.34	
BMB 9	62	1.24	slag, long bone fragment
BMB 10	66	2.2	
BMB 11	35	0.7	metal blade and bar
BMB 12	25	0.5	

Table 5. 1: Record of surface finds from sites on Bubembe Island

Site BMB 3B was unique given its modern association with a currently functioning ‘temple’ to the spirit Mukasa (see Figure 5.5). Mukasa is defined in local ethno-histories as the overarching spirit in the traditional religious cosmologies for populations within the Buganda Kingdom and as far as Rwanda and Tanzania (Berger 1973; Phillipson 1977; Roscoe 1911; 1907; Reid 2002; Kyewalyanga 1976; Gray 1910;

1935; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; 1991; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965; Kenny 1977; 1982; Henige 1974, Bjerke 1969; 1981). According to the modern populations, this same shrine (which I visited during the pilot project in 2007) has historic association with this location, and has been maintained by several generations of the same family.

The survey ceramics from Bubembe are analysed in detail in Chapter 6 Part 1. After initial survey two sites needed to be selected for sub-surface investigation.

Figure 5. 5: Main altar at the temple dedicated to Mukasa adjacent to site BMB 3B. Several other buildings associated to this temple were located nearby

5.2 Bubembe Island Excavation Sites

The graph in Figure 5.6 shows the surface density of archaeological artefacts per square metre at each site on Bubembe Island. Site BMB 3B yielded the greatest density of sherds of any site on the island, as well as the widest range of decorative techniques (stylus, comb, TGR, KPR, cord wrapped paddle, CWR, and grass) and rim forms (seven forms were recorded at BMB 3B whereas the average number of rim forms present at other survey sites on Bubembe is 3). Furthermore BMB 3B has a unique association with a shrine location and the presence of undisturbed ground in the adjacent family compound making it suitable for test excavation.

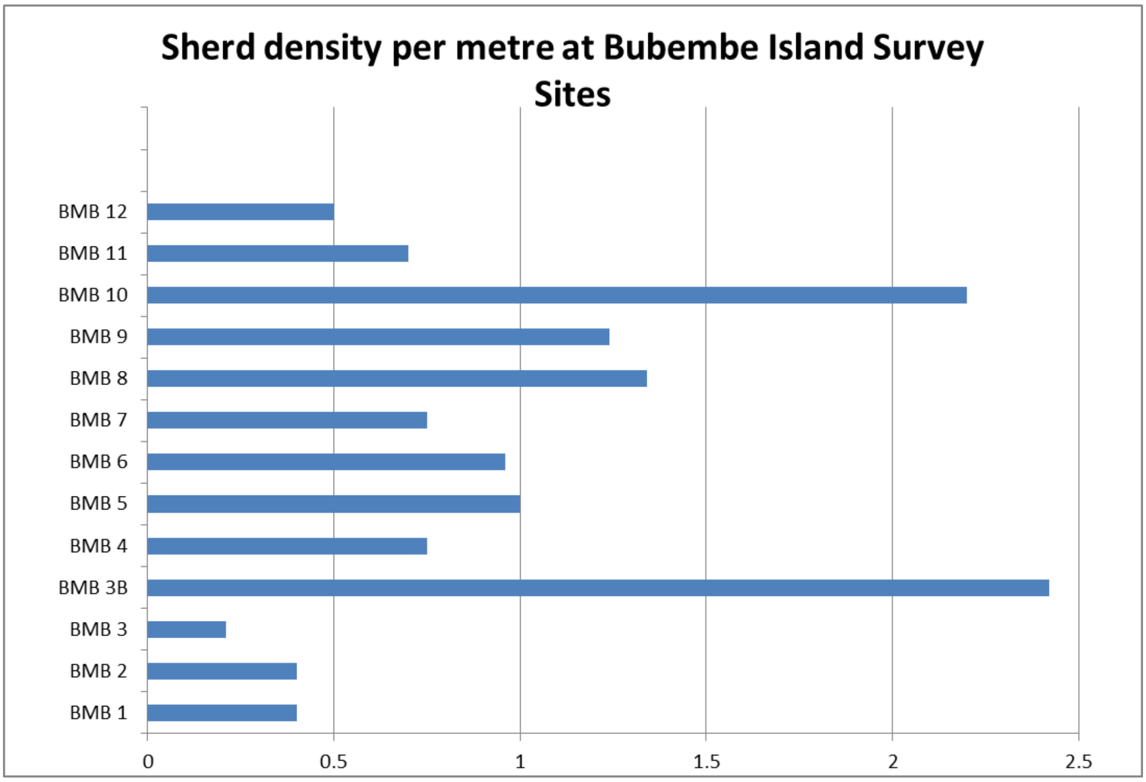


Figure 5. 6: the sherd density of surface ceramics at the Bubembe Island survey sites

Site BMB 10 had the next greatest sherd density. However the majority of sherds were decorated with a single type of tool (a KPR roulette), the number of different rim forms was below average for the island survey sites, and the material was sourced from disturbed farmland with no available undisturbed ground for excavation limiting the stratigraphic integrity of the underlying archaeology. Site BMB 8 exhibited the third highest artefact density of the survey sites with the average number of rim forms present, though the range of decorative techniques present was limited to KPR, stylus and TGR and again the site was sourced in disturbed farmland with no potential for stratigraphic integrity. Following BMB 8, BMB 9 offered the next highest density of artefacts, with the added benefit of being the only site with aceramic archaeological remains in the form of iron slag. The surface rim form variability was at the average level, with a good range of decorative techniques (KPR, TGR, stylus, cord wrapped paddle and grass). Furthermore, there was a vast beaten earth compound from which ceramics were recovered, with space for an excavation to take place. Therefore BMB 9 was used as the second test pit location on Bubembe Island.

5.2.1 Site Bubembe 3B

Site Bubembe 3B (BMB 3B) was located close to a hilltop in a forest clearing 0.5 – 1km from the lakeshore, in the south-east of the island (GPS co-ordinates: 00°27.017 S, 032°20.626 E; altitude: 195m). At 121 sherds the associated surface collection yielded the greatest density of sherds of any site on Bubembe Island, as well as the widest range of decorative techniques (stylus, comb, TGR, KPR, cord wrapped paddle, CWR, and grass) and rim forms (seven forms were recorded at BMB 3B whereas the average number of rim forms present at other survey sites on Bubembe is 3). Furthermore BMB 3B has a unique association with a shrine location, and the presence of undisturbed ground in the adjacent family compound made it suitable for test excavation. Therefore a 2x2m trench was dug at BMB 3B, with location of the trench in relation to the compound illustrated in Figure 5.7. This location was chosen for the trench as the majority of survey sherds were gathered from the adjacent pineapple plantation, and this position would not cause obstruction to the family activities conducted around the homestead. The path towards Lwabaswa was not wide enough for an excavation trench, as it would prove an obstruction to people travelling along the path.

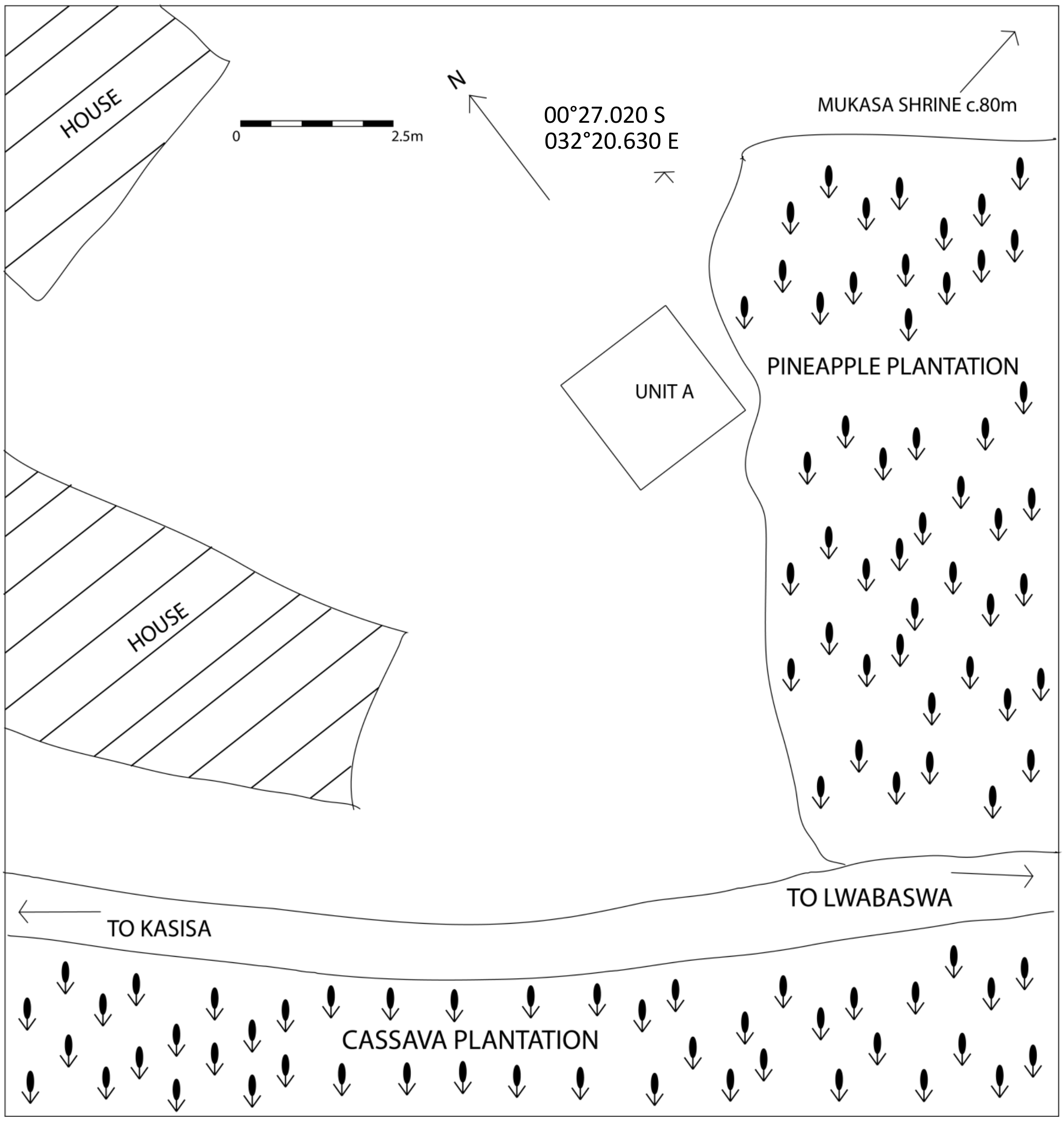


Figure 5. 7: BMB 3B Site Plan (note that the rough and warped edges of the house structures are accurate)

The trench at BMB 3B yielded 245 sherds from the sub-surface levels. Excavations revealed four sub-surface contexts reaching a depth of 78cm below ground; these contexts are listed in Table 5.2 with corresponding section drawings provided in Figure 5.8. Context 001 comprised of a brown clayey-silt soil topped by grass on the surface, and highly disturbed by a network of fine roots and small insect burrows. This was the thickest layer in the trench, likely to have been created by an accumulation of humic deposits within the densely forested environment which surrounds the homestead and its plantations. Such organically rich soils are often subject to intense bioturbation. 33% of the analysed sherds were derived from this topmost disturbed context, which also contained 4% of fragmentary sherds (weighed and discarded). The underlying context 002 can be identified as the main horizon of archaeological activity. The soil fill matched that of context 001 with a brown, clayey-silt matrix containing a few large stones. With the presence of some medium sized roots (see Figure 5.8) this second context was slightly less disturbed than 001, and contained 56% of all analysed sherds and 83% of all fragmentary sherds below 2x2cm.

Context	Depth below surface	Description
001	0 - 38cm	uppermost disturbed layer of trench
002	38 - 60cm	main archaeological horizon
003	60 - 72cm	intermediate layer between archaeologial horizon and sterile soil
004	72 - 78cm	sterile soil

Table 5. 2: Description of contexts from the excavation trench at BMB 3B

The brown clayey-silt soil matrix continued into context 003, though in this deeper layer the brown soil was heavily compacted and mottled with the underlying orange clay which characterises context 004 (note that under the Munsell colour recording system the closest colour description for the 'orange' soil here would be between "strong brown" and "reddish yellow". However the Munsell colour system does not produce accurate matches for soils in the Lake Victoria Basin and tends not to be used to describe the local soils (A. Reid, pers. Comm.). With only 10% of the analysed sherds recovered from context 003, it can be assumed that the archaeology in this layer is a construct of post depositional mixing of ceramics from the above archaeological horizon with the natural soil from the context below. The presence of some large plant roots and areas of insect disturbance may account for this mixing (see Figure 5.8). The final context (004) is an orangey-brown, highly compacted clayey soil containing only 4 sherds. The presence of large plant roots and insect burrows may again be responsible for the intrusive presence of these sherds into what appears to be sterile soil.

Although there is a main horizon of archaeological activity in context 002 the overall stratigraphy within the trench is disturbed by insect and plant root activity, which may be result of the location in a cleared compound within a tropical forest. The constant natural deposition of plant remains over time in this environment would have encouraged much insect activity within the nutrient rich humic material, consequently affecting the stratigraphic integrity. Due to the dense clayey nature of the soil matrix throughout the trench sieving was not possible at BMB 3B, as the soil merely clumped together and would not pass through the 5mm mesh. No features were present in the trench itself, and therefore trench plans have not been presented here. Chapter 6 part 2 details an analysis of ceramics from BMB 3B.

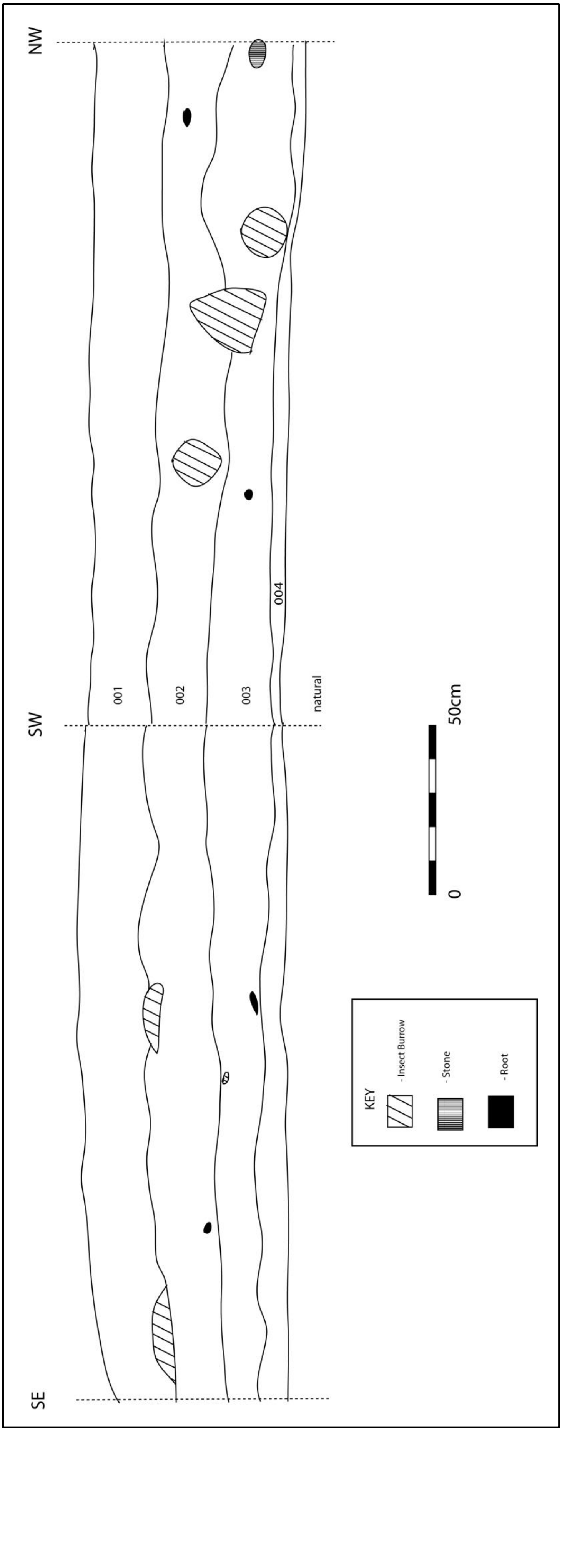


Figure 5. 8: Southern and western section of the excavation trench at BMB 3B, indicating extent of insect and root activity

5.2.2 Site Bubembe 9

Surface materials at Bubembe 9 (BMB 9) were located in a house compound and adjacent farmland alongside a path leading to the Kasese landing site, close to the top of a hill slope 1 – 1.5km from the lakeshore and slightly east of the centre of the island (GPS coordinates: 00°26.871 S, 032°20.388 E; altitude: 1197m). With 62 sherds the surface collection produced the fourth highest density of ceramics on Bubembe Island. However BMB 9 had the added benefit of being the only site on the Island with additional archaeological remains, in the form of iron slag. The surface rim form variability was at the average level (3 different forms), with a good range of decorative techniques (KPR, TGR, stylus, cord wrapped paddle and grass). Furthermore, there was a vast beaten earth compound suitable for excavation from which ceramics and slag were recovered. Therefore BMB 9 was used as the second test pit location on Bubembe Island. The site plan and location of the trench is indicated in Figure 5.9.

The 2x2m excavation trench yielded 159 sub-surface sherds, which was lower than anticipated based on the assemblage size from the excavation at BMB 3B (215 sherds). However the maximum depth of the archaeological material was also much shallower with only three sub-surface contexts identified to a depth of 30cm, compared with the 78cm terminal depth at BMB 3B. Table 5.3 details the excavated contexts from BMB 9.

Context	Depth below surface	Description
001	0 - 14cm	uppermost disturbed layer of trench
002	14 - 22cm	intermediate layer formed from a mixing of context 001 with the underlying sterile soil
003	22 - 30cm	sterile basal layer of trench

Table 5. 3: Description of contexts from the excavation trench at BMB 9

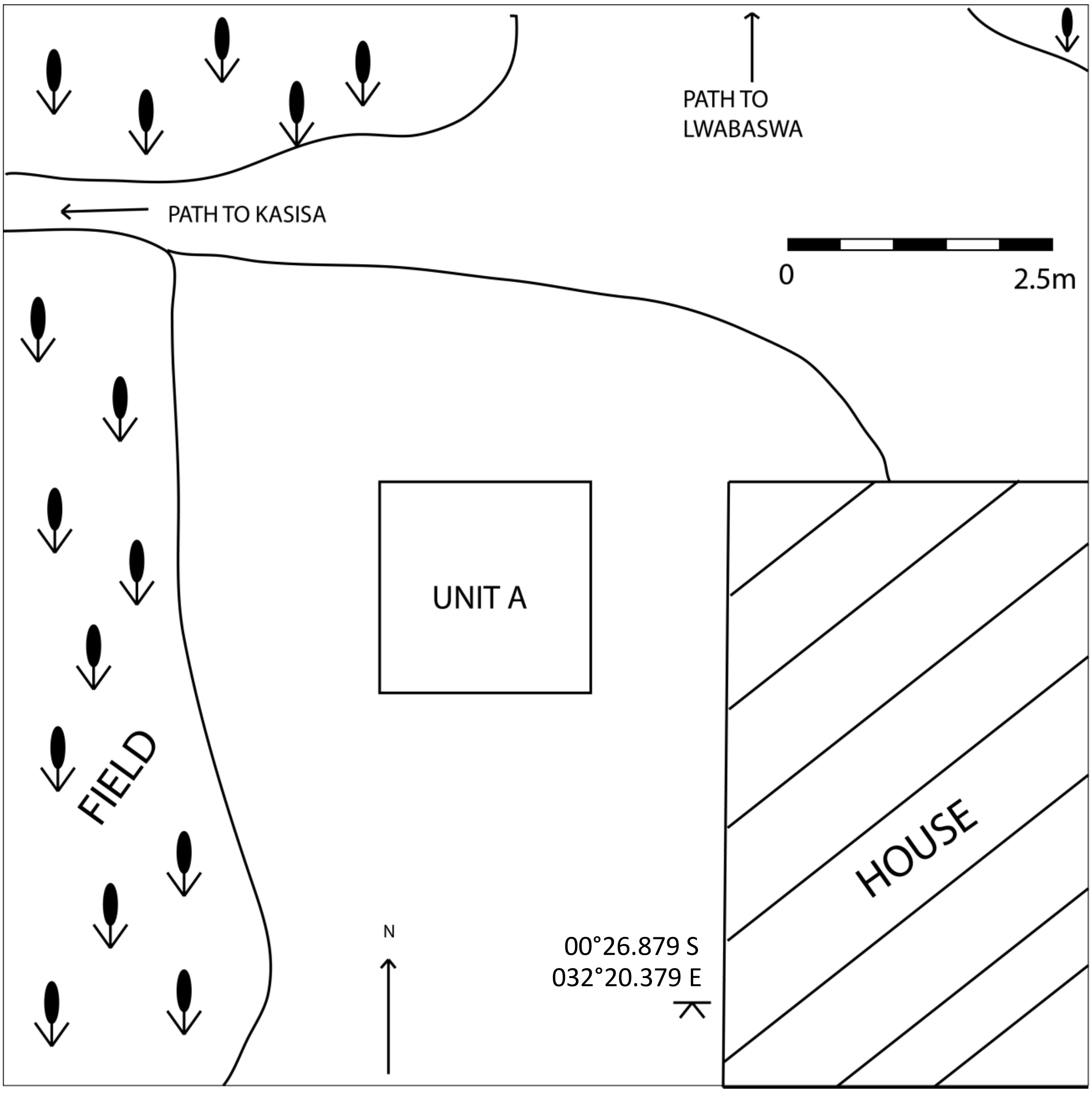


Figure 5. 9: Plan of site BMB 9 indicating location of the excavation trench

Context 001 was characterised by a 14cm deep loose brown clayey-silt soil. This fill was disturbed by small plant roots and insect burrowing, with both large and small stones present within the soil. Context 001 contained 84% of all analysed ceramics recovered from the trench, as well as 1.5kg of unanalysed sherds under 2x2cm in size (weighed and discarded). These fragmentary sherds totalled 96% of all sherds under 2x2cm encountered within the trench. Other than ceramics context 001 also contained small pieces of iron slag, pieces of modern china and broken glass. Evidently this layer is highly disturbed, though it represents the main archaeological horizon at BMB 9.

Context 002 was little different to context 001, with a loose brown clayey-silt soil matrix containing small stones and suffering some insect disturbance. However the density of pots sherds was much less within this 8cm layer; only 12 sherds were recovered for analysis and 50g of fragmentary sherds were weighed and discarded. This suggests context 002 is fabricated from a mixing of the overlying archaeological horizon and the underlying sterile soil.

There was no change in the soil matrix filling context 003; however the brown clayey-silt soil was more compacted than the preceding layers. With only 7 sherds acquired for analysis from context 003 and 10g of fragmentary sherds weighed and discarded, this layer can be taken as the sterile soil underlying the archaeology at BMB 9. The few sherds present are likely to be intrusive, which may be explained by the presence of insect burrows through all layers of the trench.

The soil removed from the trench at BMB 9 did not clump together in the same way as the fill encountered at site BMB 3B, and hence all context fills were passed through a 5mm sieve to check for macro-remains, though none emerged aside from fragmented ceramics. From the shallow depth of the trench and the concentration of ceramics in the uppermost layer, it appears that since deposition and burial the archaeological materials have subsequently been exposed to the surface either by bioturbation within the soil, erosion of the upper layers of soil by natural causes, or the removal of soil by human action. Considering the depth of the archaeological horizon at BMB 3B (38 – 60cm) despite evidence for insect and plant activity within the soil, it is likely the archaeology at BMB 9 has become exposed by natural or human action, rather than forced to the surface by bioturbation. As no archaeological features were encountered in the trench, plans of each context will not be reproduced here. Figure 5.10 illustrates the distribution of contexts within the southern wall, which also provides evidence of the scale of insect disturbance. The remaining walls do not contain any such intrusive disturbances or archaeological features, and with little variation in the vertical distribution of contexts from the wall depicted in Figure 5.10, they have not been reproduced here. A full analysis has been carried out on the ceramics from BMB 9 in Chapter 6 Part 2.

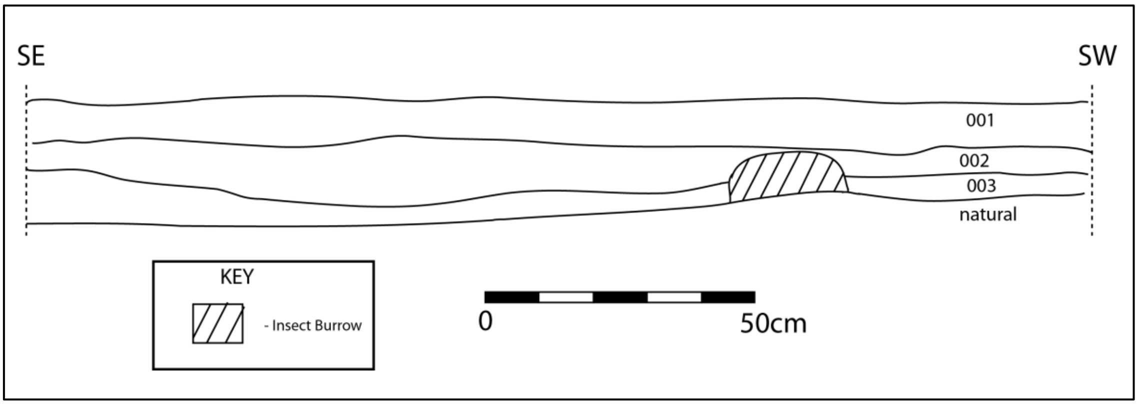


Figure 5. 10: Section drawing of the southern wall from the excavation trench at BMB 9

5.3 Bukasa Island Survey Sites

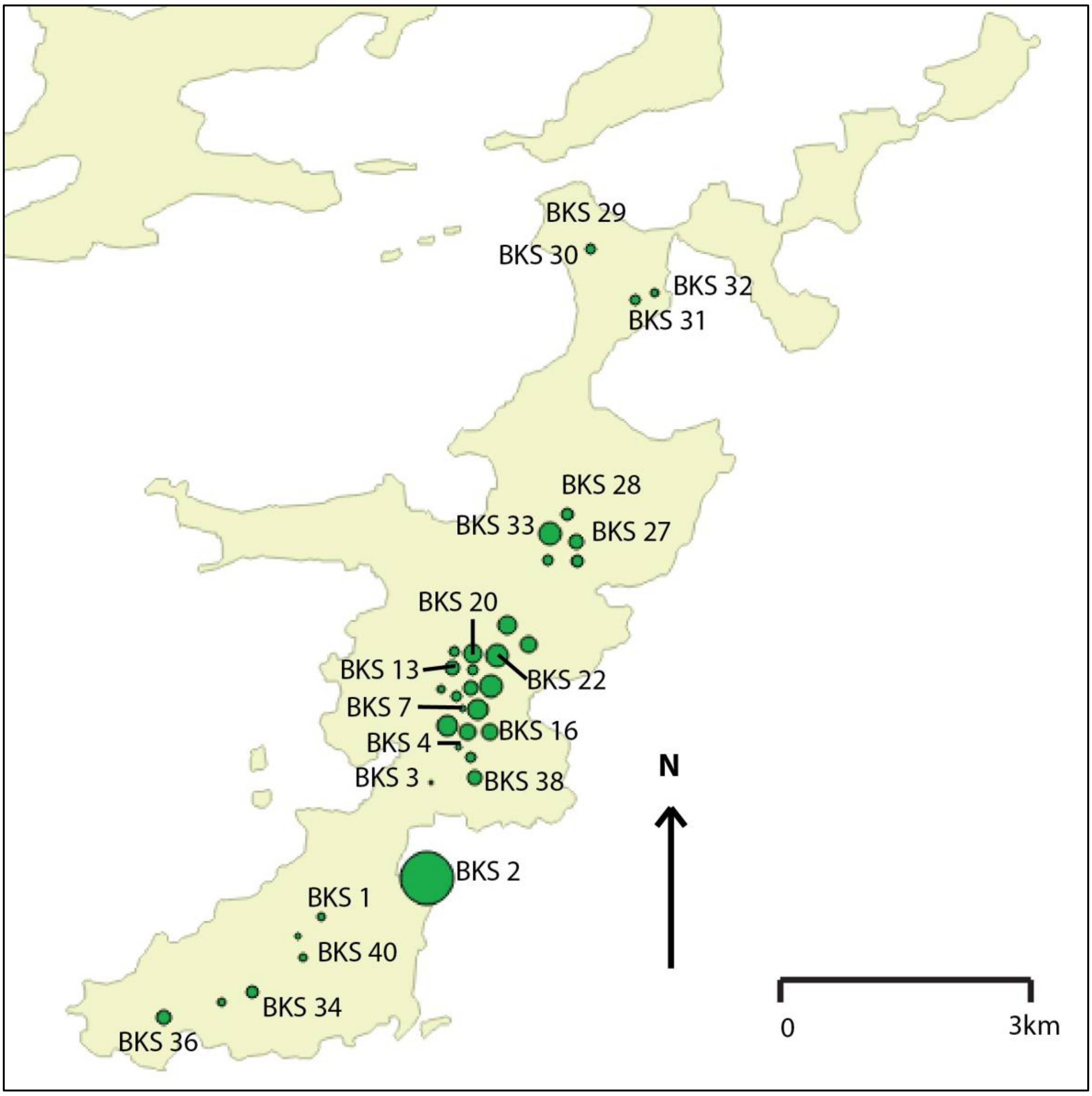


Figure 5. 11: Location of survey sites on Bukasa Island with marker size scaled to reflect assemblage size. Due to dense site clustering it is not possible to illustrate or label all sites on the map

Bukasa measures roughly 18km x 15km, with the same forest/ grassland/ farmland vegetation trichotomy as Bubembe. The oil palm project on Bukasa was more advanced than on Bubembe, with the pits having already been planted with young palm trees; the cleared areas around these pits did however still provide some exposure of ground for survey. On Bukasa 39 archaeological sites were recorded (BKS 1 – BKB 40) with a total of 2048 sherds, alongside one modern ethnographic shrine assemblage (see Figure 5.11).

Site name	Total number of sherds	Sherd density per metre	other remains
BKS 1	12	0.24	ovicaprine long bone
BKS 2	293	2.93	iron
BKS 3	18	0.36	
BKS 4	15	0.50	modern iron blade
BKS 5	41	2.05	
BKS 6	87	1.74	
BKS 7	24	0.80	slag (v. small piece)
BKS 8	12	0.24	
BKS 9	14	0.70	
BKS 10	96	0.96	
BKS 11	59	0.59	
BKS 12	50	0.63	
BKS 13	136	1.70	Bos tooth; ovicaprine longbone
BKS 14	47	0.94	
BKS 15	12	0.40	
BKS 16	27	1.35	possible petroglyph
BKS 17	15	0.75	
BKS 18	80	2.00	
BKS 19	110	1.38	iron
BKS 20	207	3.70	slag
BKS 21	82	2.05	
BKS 22	127	2.54	slag (v. small piece)
BKS 23	48	1.60	
BKS 24	61	1.53	
BKS 25	17	0.85	
BKS 26	23	0.58	
BKS 27	27	0.68	
BKS 28	58	2.90	
BKS 29	0	0.00	possible field terraces
BKS 30	19	0.95	
BKS 31	29	1.45	
BKS 32	20	1.33	
BKS 33	97	3.23	
BKS 34	34	0.68	
BKS 35	17	0.85	
BKS 36	9	0.30	
BKS 37	24	1.20	
BKS 38	31	1.55	
BKS 39	14	0.70	
BKS 40	14	0.70	

Table 5. 4: Artefact density and details of assemblage composition from each survey site on Bukasa Island

The majority of the sites concentrate on the central ridge of the island, with a small cluster of sites further north and further south. The high number of sites, larger site sizes and density of site clustering compared to Bubembe and Bubeke Islands may be attributed to the larger size of Bukasa Island, which may provide a greater amount and variety of resources to aid population growth or artefact production. Again ceramics formed the majority of the surface remains with a few isolated occurrences of iron slag and bone (see Table 5.4). Slag was associated with three sites: BKS 7, BKS 20 and BKS 22. Ovicaprine long bones were found on the surface at BKS 1 and BKS 13, with a cow tooth also found at BKS 13, though due to aforementioned problems of organic preservation in the study region these can probably safely be interpreted as modern. Similarly the finished iron objects at BKS 2 and BKS 4 appear to be modern.

The potential petroglyph from BKS 16 is shown in Figure 5.12; the small and regular circular depressions mimic the boards used to play a modern game called 'Mwesa'; elsewhere in Uganda this game is carved into flat rock surfaces and played by herders while their flocks graze. Finally the potential field terraces recorded at BKS 29 are depicted in Figure 5.13.

Figure 5. 12: Petroglyph at site BKS 16

Figure 5. 13: Artificially constructed terraces at site BKS 29

Whilst these terraces may be the same feature recorded as Iron Age field markings by Fagan and Lofgren during their survey (Fagan and Lofgren 1966a; 1968), there were no associated archaeological materials. Local sources claim that these demarcated terraces simply exist there and were not created by modern population, though today they offer convenient plots of levelled ground for drying small net-caught 'silverfish'. These terraces may have been abandoned during the sleeping sickness evacuation of 1908 and subsequently forgotten about by the new populations who later established themselves in the islands, due to the absence of archaeological material to suggest a greater antiquity of use. All survey sites were located either close to or on hill tops apart from BKS 29 with the associated levelled terraces, which were located on a lower hill slope. Eleven of the sites were located within half a kilometre of the lakeshore, with the remainder located within 3km of the lake, and the one cave and two rockshelters encountered during survey did not yield any archaeological information. As with Bubembe, there was a high presence of modern shrines on Bukasa, with oral traditions giving them historic presence on the island.

5.4 Bukasa Island Excavation Sites

To decide upon which two of the forty sites to excavate, assemblages of merit must first be highlighted. The graph in Figure 5.14 indicates the sherd density for each survey site. Although BKS 2 appears largest on the map, due to the wide spread of the materials this site did not have the greatest artefact density. BKS 20 has the greatest sherd density per metre squared of all sites on the island, followed by BKS 33, BKS 2, BKS 28, BKS 22, BKS 21, and BKS 5 (the remaining sites' sherd densities are all only slightly greater than average or lower). The average number of decorative techniques present at the Bukasa survey sites is 5. Sites BKS 2 and BKS 13 have the greatest number of decorative techniques (nine at each site), and sites BKS 11, BKS 20, BKS 19, BKS 22, BKS 24, BKS 33, and BKS 28 all have above the average variety of decorative techniques in their assemblages. The average number of different rim forms in the surface assemblages is 5, with a large number of sites exhibiting more than 5. With 12 different rim forms recorded, BKS 20 had the highest diversity of rim forms on the island, closely followed by BKS 21 and BKS 2 with 11 apiece. BKS 22, BKS 23, BKS 13, BKS 11, BKS 19, BKS 18, BKS 16, BKS 24, BKS 33, and BKS 27 all had a higher than average representation of rim form diversity. Finally site BKS 21 yielded two unique ceramic handles heavily decorated with stylus and comb impressions (see Figures 5.15 and 5.16). These find are interesting as handles are very rare in the archaeological record of the region and have only been associated with comb and TGR decorations (Ashley 2005). From this information, BKS 2, BKS 20, and BKS 22 all have high sherd densities, and high ceramic decorative and rim form variability. BKS 20 has the bonus of being associated with iron slag rather than just ceramics. With site BKS 22 not suitable for excavation due to the extent of farmland interfering with the archaeological stratigraphy, BKS 2 and BKS 20 were selected for excavation.

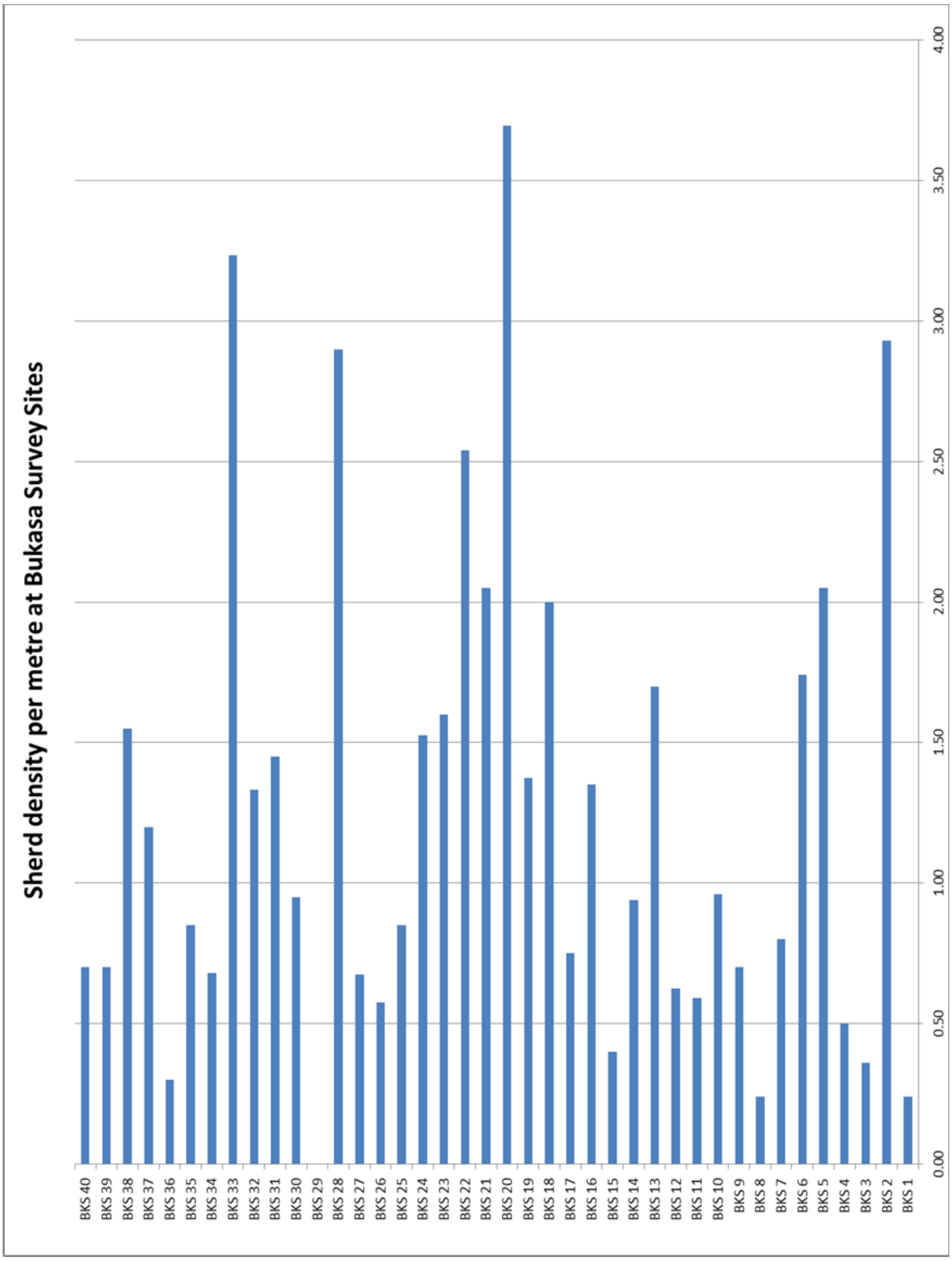


Figure 5. 14: Surface assemblage sherd densities at Bukasa Island Sites

Figure 5. 15: Ceramic handle 1 from the surface assemblage at BKS 21

Figure 5. 16: Ceramic handle 2 from the surface assemblage at BKS 21

5.4.1 Site Bukasa 2

The surface assemblage from Bukasa 2 (BKS 2) was located in farmland surrounding a house compound in the Bukiranzi area to the southeast of Bukasa Island. The site was situated on the upper slopes and top of a hill, 500m from the lakeshore (GPS co-ordinates: 00°28.422 S, 032°29.349 E; altitude: 1212m). At 385 sherds the surface collection at BKS 2 yielded the third highest density of ceramics on the island, with the largest variability of decorative techniques (KPR, stylus, cord-wrapped paddle, comb, TGR, CWR, clay roulette, grass, and fingernail) and a high variability of rim forms (11 different forms recorded).

A 2x2m excavation trench was placed in the cleared compound behind the house, as this position was located centrally to the fields from which the extensive surface collections were derived. Figure 5.17 illustrates the location of the excavation unit at BKS 2 in relation to the adjacent house and farmland. The trench yielded 423 sub-surface sherds to a depth of 64cm within five sub-surface contexts. Table 5.5 provides a description of each of these five contexts.

Context	Depth below surface	Description
001	0 - 6cm	topsoil - disturbed layer of trench
002	6 - 10cm	disturbed upper layer cut by context 003
003	6 - 8cm	intrusive modern cut into context 002, overlain by topsoil 001
004	10 - 55cm	main horizon of archaeological activity
005	55 - 64cm	sterile soil beneath the main archaeological horizon

Table 5. 5: Description of sub-surface contexts encountered during excavation at BKS 2.

Context 001 was dark brown in colour with a slightly sandy though primarily silty soil matrix. The loose material was highly disturbed containing small stones, flecks of charcoal (presumed modern), grass, and many small roots. No sherds were recovered from this shallow context for analysis, and only 1% of all sherds below 2x2cm in size (weighed and discarded) were derived from this context. Context 002 had a very similar soil profile to context 001 with a dark brown, soft sandy-silt matrix containing small stones and flecks of charcoal. Root disturbance is again prevalent though ceramic finds increase from the preceding layer; context 002 contributed 20% of all analysed sherds, and 28% of all fragmentary sherds. Context 002 is cut in its south-west corner by context 003, which is illustrated on the trench plan in Figure 5.18.

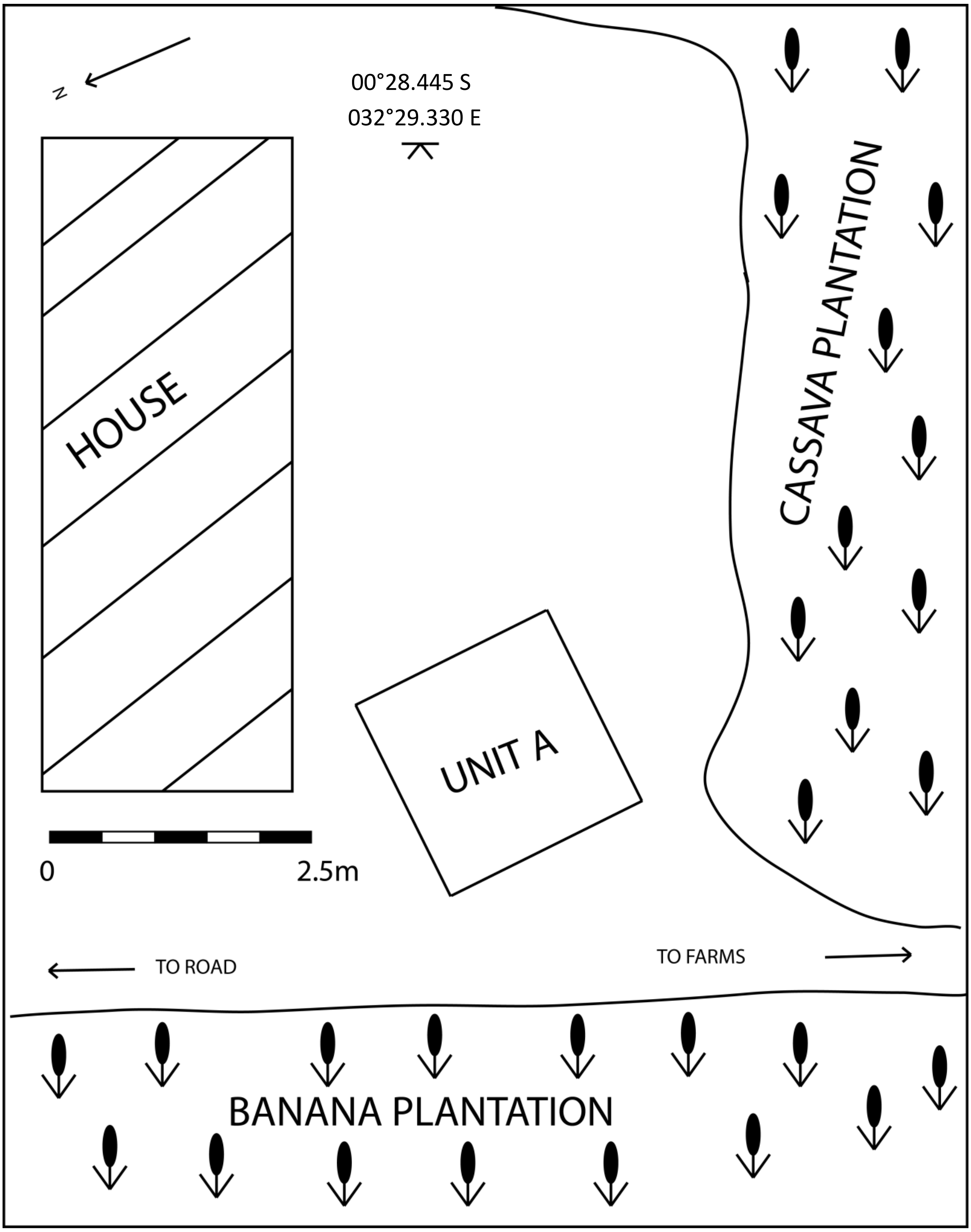


Figure 5. 17: site plan from BKS 2

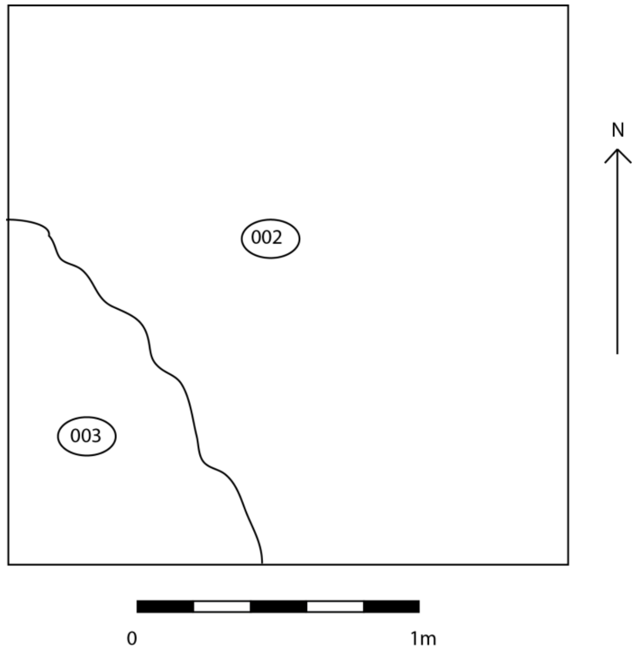


Figure 5. 18: plan of contexts 002 and 003 at BKS 2

Context 003 was again filled with a very similar dark brown, sandy silt soil flecked with charcoal akin to contexts 002 and 003. However the presence of modern household waste in this layer (a discarded hair weave) and a complete absence of archaeological material suggests context 003 to be an intrusive cut into the trench, which has subsequently mixed with contexts 002 and 001. This cut is evident in the section drawings provided in Figure 5.19. Modern burning of rubbish at the time the cut was made may be responsible for the charcoal flecking in the upper contexts of the trench.

Context 004 represents the main horizon of archaeological activity, at a depth of 10-55cm. The soil here changes in composition and colour to a lighter brown clayey-silt soil mottled with orange clay, similar in character to the lower levels of trenches excavated on Bubembe Island. The mottling of orange clay within the context represents the proximity of the sterile natural below. This penultimate layer accounted for 77% of all analysed sub-surface ceramics at BKS 2, and 70% of all fragmentary sherds below 2x2cm. However soil disturbance is still present, as evidenced by the occasional presence of medium sized plant roots within the trench. However the smaller and more frequent root systems typical of shallower layers closer to the surface are largely absent. This occasional root disturbance lower in the trench can be seen in the section drawings in Figure 5.19.

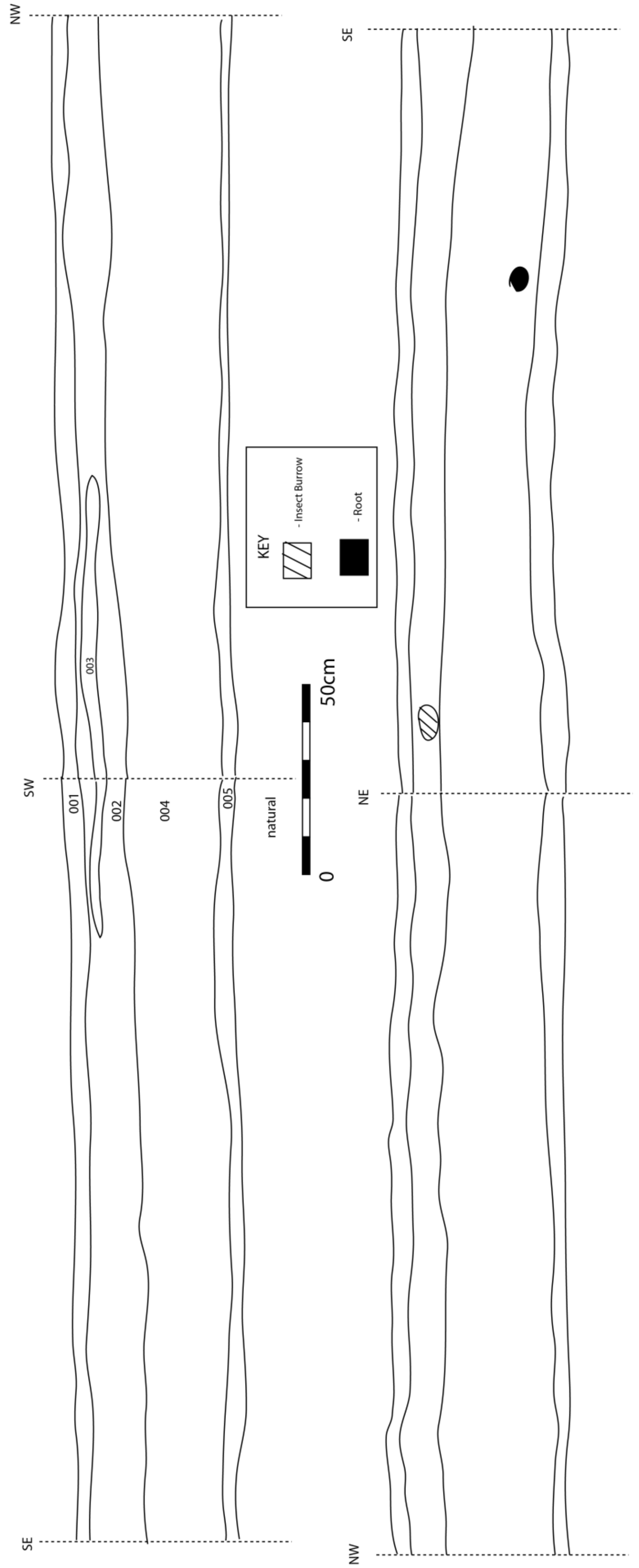


Figure 5. 19: **Section drawings from the excavation trench at BKS 2**

Context 005 was filled with a compacted orangey-brown clayey-silt soil, containing some small stones and medium sized roots. The context was largely sterile, containing only three larger sherds and 1% of all fragmentary ceramics. Therefore this can be identified as the ultimate layer of the trench directly overlying the natural soil, with a rare presence of ceramics from post-depositional mixing within the trench.

All soil from BKS 2 was passed through a 5mm sieve to assess the presence of macro-remains, though none were recovered aside from fragmented ceramics. The excavation trench at BKS 2 is disturbed in its upper layers by a modern cut and refuse burning, and in the lower layers by some plant root activity. However during excavation it became apparent that all of the tropical soils excavated in the Lake Victoria Basin suffer some degree of insect and plant activity. Despite these disturbances, section drawings at BKS 2 indicate a clearly defined archaeological horizon, though a small amount of archaeological material has become mixed with the contexts above and below through root and insect activity. Considering the shallow depth of this ceramic rich layer beginning at around 10cm, the abundance of archaeological material on the surface in the fields around the excavation unit can be interpreted as artificial exposure from the underlying archaeological layer as a result of agricultural practices (e.g. ploughing). A full analysis of all excavated ceramics from BKS 2 is presented and discussed in Chapter 6 Part 2.

5.4.2 Site Bukasa 20

The surface scatter from Bukasa 20 (BKS 20) was recovered from the fields and paths surrounding a domestic compound belonging to an elderly lady named Irene Najjemba, located close to Buzingo village on an upper hill slope 1 – 1.5km away from the lakeshore in the centre of the island (GPS coordinates: 00°26.216 S, 032°30.040 E; altitude: 1221m). Modern sites of traditional cult activity were recorded within a 1km radius of BKS 20. The 196 sherd surface collection from BKS 20 offered the greatest density of ceramic material encountered on all three islands, with very high variability in rim forms (12 different forms recorded) and decorative techniques (KPR, stylus, cord wrapped paddle, comb, TGR, CWR, clay roulette), as well as the greatest amount of iron slag (11 large pieces).

The large beaten earth courtyard at the centre of the ceramic scatter offered potential for excavation, with the selected location of the 2x2m trench illustrated in Figure 5.20. Excavation at BKS 20 unveiled an accumulation of archaeological deposits to a depth of 145cm, which is deep in comparison to the typically shallow sites encountered during this study. Furthermore, excavations at BKS 20 yielded several layers of archaeological activity with 5 sub-surface contexts recorded, four post holes, and 3 cuts (1 of these cuts is presumed to be archaeological, and the remaining two attributed to insect activity). These contexts and their descriptions are listed in Table 5.6.

Context 001 was filled with a 10cm deep very compacted and dry light brown silty soil, containing occasional small stones and exhibiting some disturbance from small roots. The compacted and dry nature of this context is a result of being part of a beaten earth courtyard in an artificial clearing between the surrounding fields and forest. The reduced presence of small roots within this topsoil compared to other excavation sites presented in this chapter indicates that the courtyard has been cleared of plant activity for some time, and the woman currently residing in the homestead claims her family have inhabited the same site for several generations within her living memory, and possibly beyond. A small amount of pottery forming 6% of all analysed sherds and 6% of all fragmentary sherds (weighed and discarded) as well as a small amount of slag was recovered from this uppermost layer. The fine silty texture of the soil is likely the result of accumulated deposits from the natural biodegradation of organic matter from the surrounding forest.

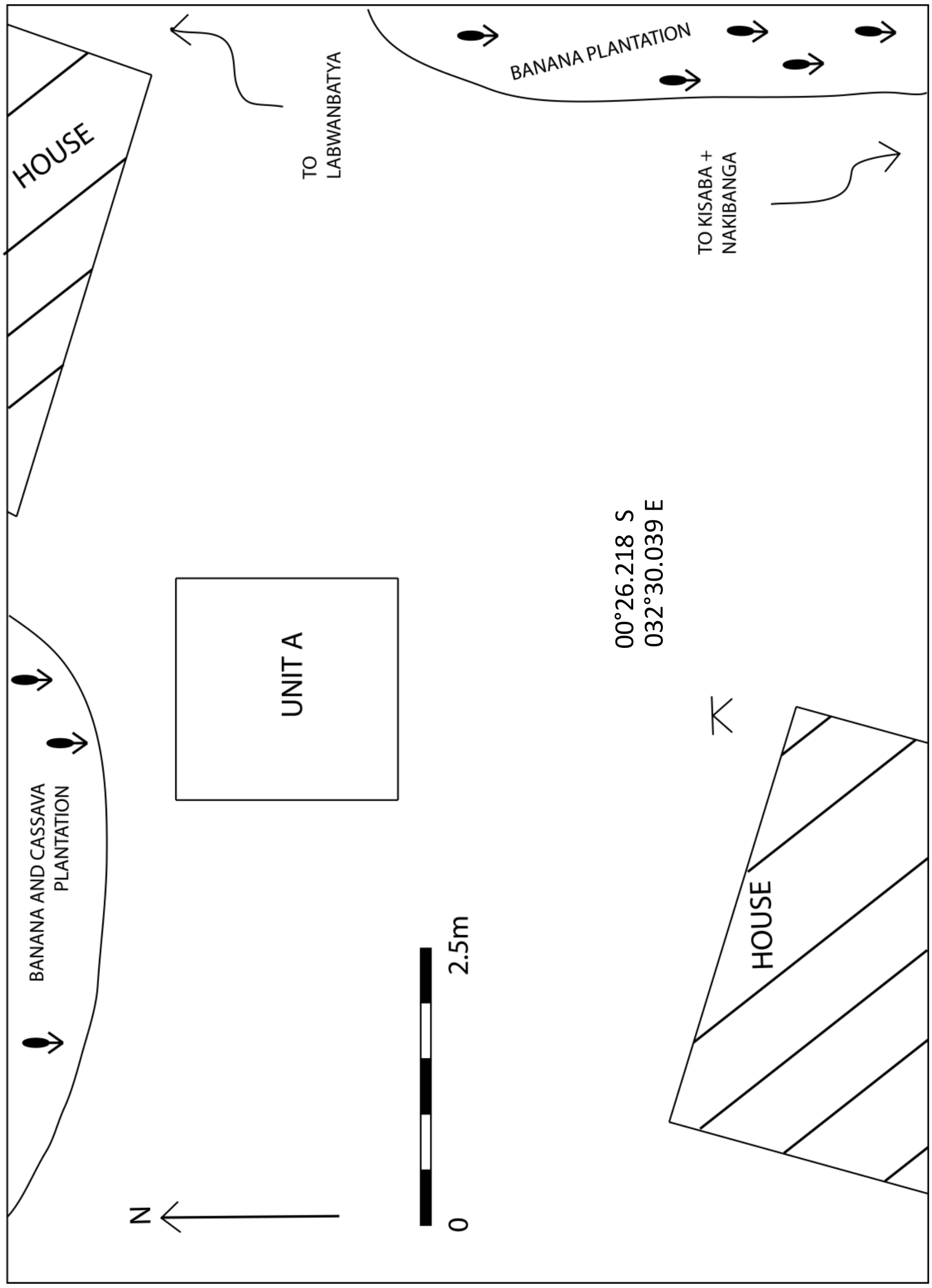


Figure 5. 20: Plan of site BKS 20, indicating location of the excavation unit in relation to surrounding modern features

Context	Depth below surface	Description
001	0 - 10cm	uppermost beaten earth layer of trench
002	10 - 20cm	disturbed uppercontext within trench
003	10 - 15cm	possibly intrusive patch of burnt earth
004	20 - 36cm	disturbed context with a concentration of archaeological material
005	34 - 83 cm	fill from post hole cutting contexts 004 and 006
006	36 - 81cm	major archaeological horizon with some insect and root disturbance
007	50 - 84cm	fill from post hole cutting contexts 006 and 008
008	81 - 140cm	major archaeological horizon with some insect and root disturbance
009	81 - 92cm	patch of loose ground resulting from insect activity
010	81 - 89cm	compacted soil with charcoal flecks
011	81 - 93cm	patch of loose ground resulting from insect activity
012	10 - 42cm	fill from half of post hole located in section of trench cutting contexts 002, 004 and 006
013	136 - 143cm	fill from post hole cutting context 008 and the underlying sterile soil
natural	140 - 145cm	sterile soil

Table 5. 6: contexts encountered during excavation at BKS 20

Context 002 contained a medium brown clayey-silt soil matrix featuring some small stones, which is characteristic of the other excavation sites encountered within the Sesse Islands. The presence of small roots and insect disturbance suggest the flecks of charcoal present in this shallow layer are modern and intrusive. The number of larger sherds suitable for analysis has only increased marginally from the preceding layer to 9% of the total recovered from the trench; however the number of fragmented sherds below 2x2cm in size increased more dramatically to 17% of the total amount. Context 003 cuts into the north-eastern quarter of context 002, and this is illustrated in the site plan in Figure 5.21.

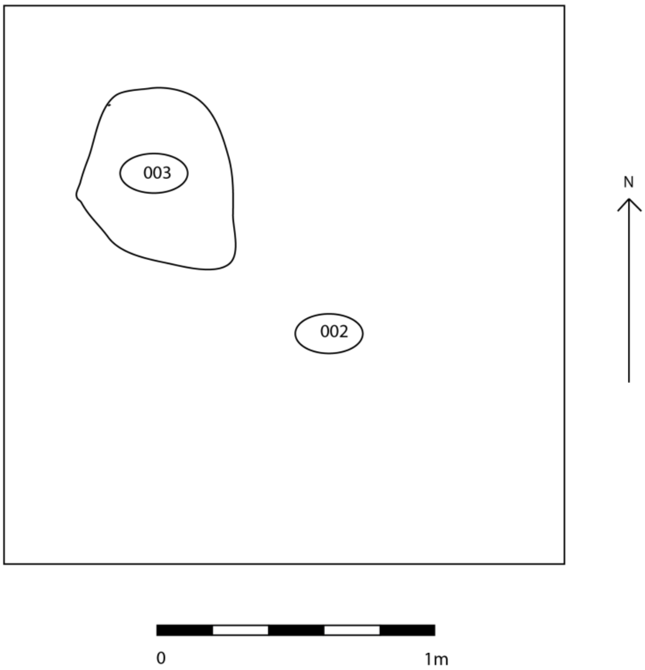


Figure 5. 21: trench plan of excavation unit at BKS 20, indicating cut of context 002 by context 003.

Context 003 was filled with a medium brown soil mixed with a darker brown deposit mottled with charcoal. The soil was very compacted with a fine silty texture. At only 10-15cm below ground and containing no archaeological material, this isolated disturbance is likely to be a modern cut where some burning took place.

Context 004 represents the first major archaeological horizon in the trench with an increased density of ceramics; 26% of the analysed excavation sherds and 24% of all fragmented sherds were acquired from this layer. The loose brown silty soil had a 5% mottling of orange clay, which at other excavation sites in the Sesse Islands tends to signal the proximity of the sterile orange clayey soil beneath the trench, though in this instance the archaeological deposits persist for a further metre below context 004. Some small pieces of slag were recovered from this context, though the presence of some plant roots and insect burrowing suggests stratigraphy may be mixed within this layer. Despite this potential mixing, there was a clearly defined cut of context 004 by a post hole close to the centre of the trench (context 005). This is illustrated in figure 5.22.

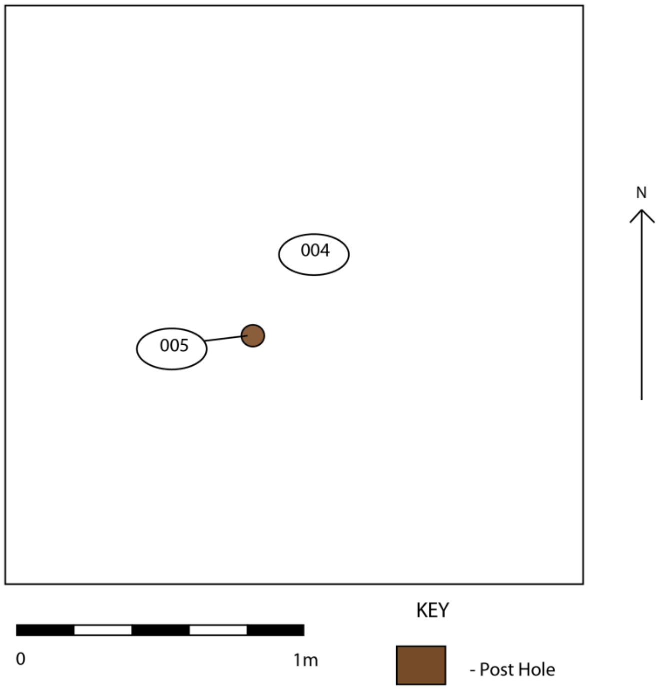


Figure 5. 22: trench plan of excavation unit at BKS 20, indicating cut of context 004 by post hole context 005

The fill of the post hole context 005 was characterised by a loose silty brownish-grey soil containing no archaeological materials. The post hole also visibly cuts into context 006 and context 008, which may suggest some stratigraphic integrity in parts of the trench, and implies that insect and root activity is isolated to specific locations underground rather than destroying all stratigraphy across the trench. A piece of charcoal was sampled from 3cm down into context 005, though this has not been dated as inaccuracies in radiocarbon dating methods tend to require more than one sample for cross-referencing dates.

Context 006 contained the highest density of archaeological material within the trench, producing 32% of all analysed sherds and 26% of all fragmentary sherds. The soil matrix was very similar to the fill of context 004, characterised by a compacted medium brown clayey-silt soil, mottled with orange clay. Some small pieces of charcoal were present within the context, but their fragmentation and the presence of both plant root and insect disturbance suggest this charcoal to be intrusive. Aside from being cut by the post hole context 005, this layer is also cut by a second post hole (context 007) on the north-western side of the trench. The location of both post holes within context 006 is indicated on the trench plan in Figure 5.23. The majority of the pottery recovered from context 006 was sourced from the southern side of the trench below the two post holes; however without further excavation beyond the edges of the trench it would be impossible to say whether this represents the accumulation of ceramics on the outer edge of a structure or whether it is pure coincidence.

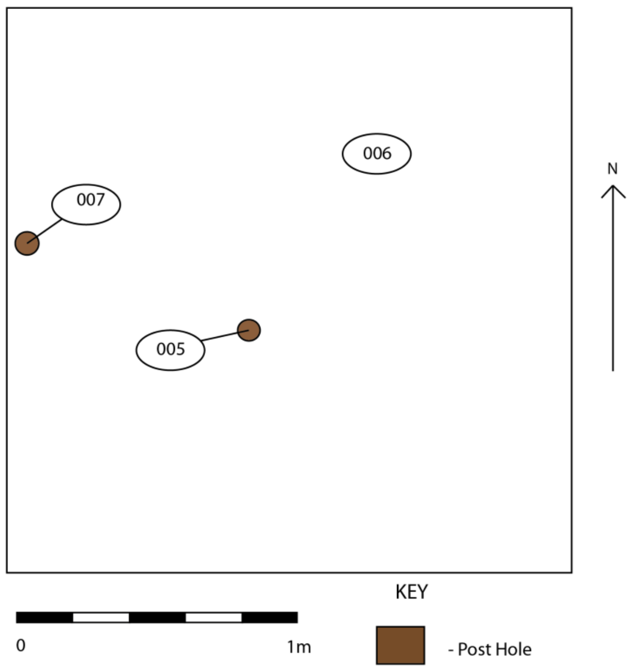


Figure 5. 23: Plan of trench at BKS 20 indicating the position of post holes 005 and 007 within context 006

The fill of the post hole context 007 was identical to context 005, characterised by a loose, brownish-grey silt soil containing no finds. The cut of context 007 extends into context 008, which is illustrated in the trench plan in Figure 5.24. Context 008 yielded a great density of archaeological material which included 24% of all analysed ceramics, and 14% of all fragmentary ceramics. The highly compacted brownish-orange clayey-silt filling context 008 contained few large and multiple small stones. The compaction and increasingly orange colour of the soil is common of the layers of the trench closer to the underlying sterile soil. However this lower context of the trench is also partially disturbed, with distinctly bounded areas of insect activity (contexts 009 and 011), and the presence of a few medium sized roots. In its south-west corner, context 008 is cut by context 010 at a depth of 81-89cm. Due to the depth and sealed nature of this cut, it is likely to be part of an archaeological feature extending beyond the borders of the trench.

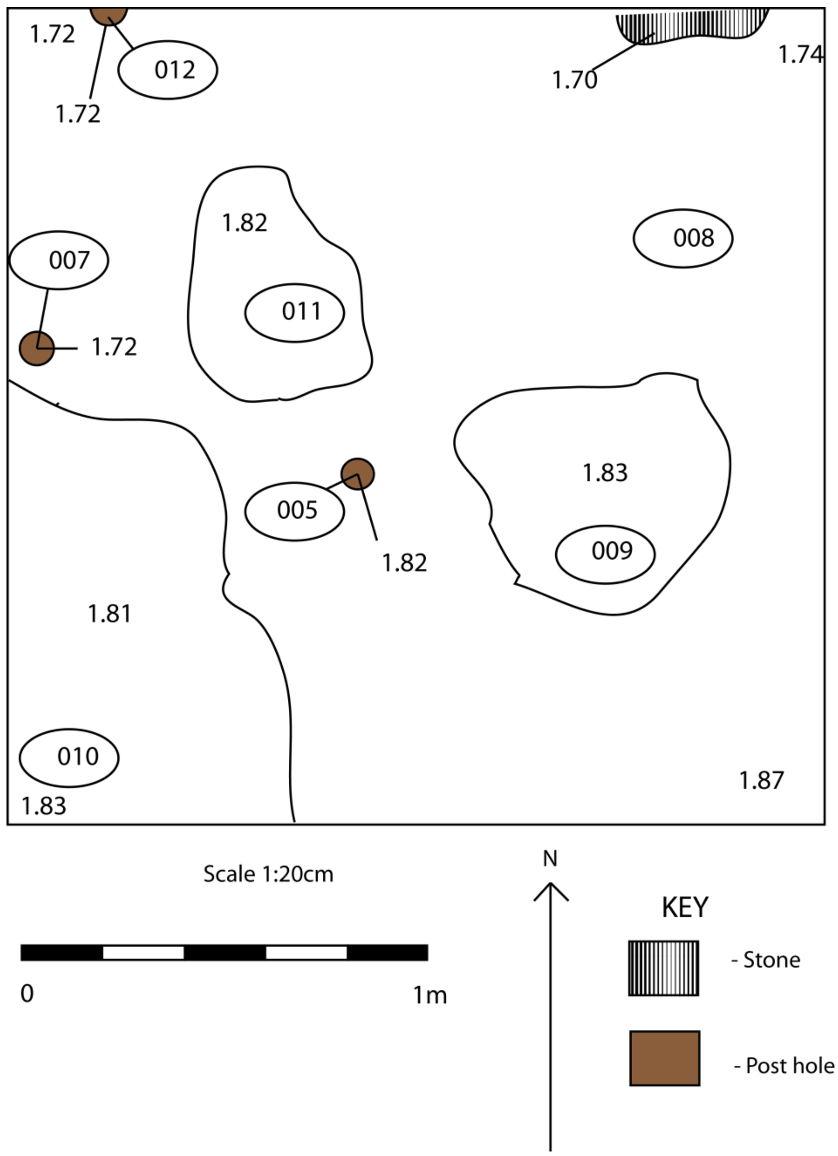


Figure 5. 24: trench plan of context 008, indicating numerous cuts made by post holes (contexts 005, 007 and 012), insect burrows (009 and 011), archaeological features (context 010)

The very bottom of context 008 yielded an iron spearhead close to the western wall and slightly north of context 007 (see Figure 5.25). Considering the presence of insect and root activity it could be suggested that this and the ceramic finds within the layer are the result of post-depositional mixing of the higher archaeological contexts with the lower sterile soil. However the continued presence of post holes and the high density of archaeological material indicates that in spite of some areas of disturbance within the trench, context 008 does represent an archaeological horizon of activity. Aside from the continued presence of post holes 005 and 007, a post hole (context 012) emerges in the north western corner of context 008, cutting into the northern wall.

Figure 5. 25: spearhead from the bottom of context 008 at BKS 20

Context 009 was filled with a loose, silty brown soil containing a few small stones. Only one larger sherd and 0.6% of the fragmented sherds were derived from this context. With few finds and a fill matching the uppermost layers of the trench, context 009 is likely to be the result of insects burrowing into the soil and creating pockets of downshifted upper layer soils in bounded areas of the lower layers. Context 011 contained a very similar fill to context 009, characterised by a loose, brown silty soil containing some small stones. While only 2 larger sherds were recovered from context 011 for analysis, 11% of the fragmentary sherds were found here. At the bottom of the context there was a dense concentration of active ants, suggesting both contexts 009 and 011 are a result of ant digging. The presence of very few large (and heavier) potsherds but an abundance of smaller, lighter sherds under 2x2cm in context 011 indicates they were moved there by the insects.

Context 010 contained a very compacted orangey-brown clayey-silt soil mottled by small charcoal flecks and some small stones, with a presence of medium sized plant roots. The sealed nature and depth of this context indicate the cut is archaeological. Only a small amount of ceramics were recovered from this context, and the fragmentary and sparse mottling of the charcoal suggests this was not a primary area of burning.

The post hole context 012 cutting into the wall of the trench was filled with a loose, silty, brownish – grey soil containing no archaeological material, which matches the fill from post holes 005 and 007. Post hole 012 is illustrated in the section drawing of Figure 5.27. It appears the cut begins from below context 001, although within the horizontal profile of the trench it was not visible until context 008. With a presence of post hole 012 from the second layer of the trench cutting into the lower layers, the post holes are from a later date than the deposits of contexts 002, 004, 006 and 008, suggesting multiple phases of occupation at BKS 20 – an older occupation characterised by the ceramic deposits, and the younger occupation characterised by the post holes and surface collections.

The lower level of context 008 revealed a fourth post hole beneath the depth of all other archaeological features, almost adjacent to post hole context 012 (see plan in Figure 5.26). The deeper appearance of this post hole may be a result of disturbances higher up in the soil masking its presence in the preceding contexts. The plan in Figure 5.26 also indicates a deeper extent of archaeological material in the north-western sector of the trench, which extends below the height of the underlying natural soil in the south-eastern half of the trench. Below context 008 this sterile soil was dug to a depth of 5cm to confirm the absence of any archaeological material.

All soil removed from the trench was passed through a 5mm sieve to identify macro remains, though none emerged aside from fragmented ceramics. Due to the presence of a more complex stratigraphy than any other site excavated in this chapter with the presence of archaeological features, a wealth of ceramics and iron tools, several potsherds were taken for OSL dating. The dates from these sherds can be used to suggest dates for the contexts from which they are derived, and this information is presented in the subsequent section following the BKS 20 section drawings. A full analysis of the excavated ceramics is provided and discussed in Chapter 6 Part 2.

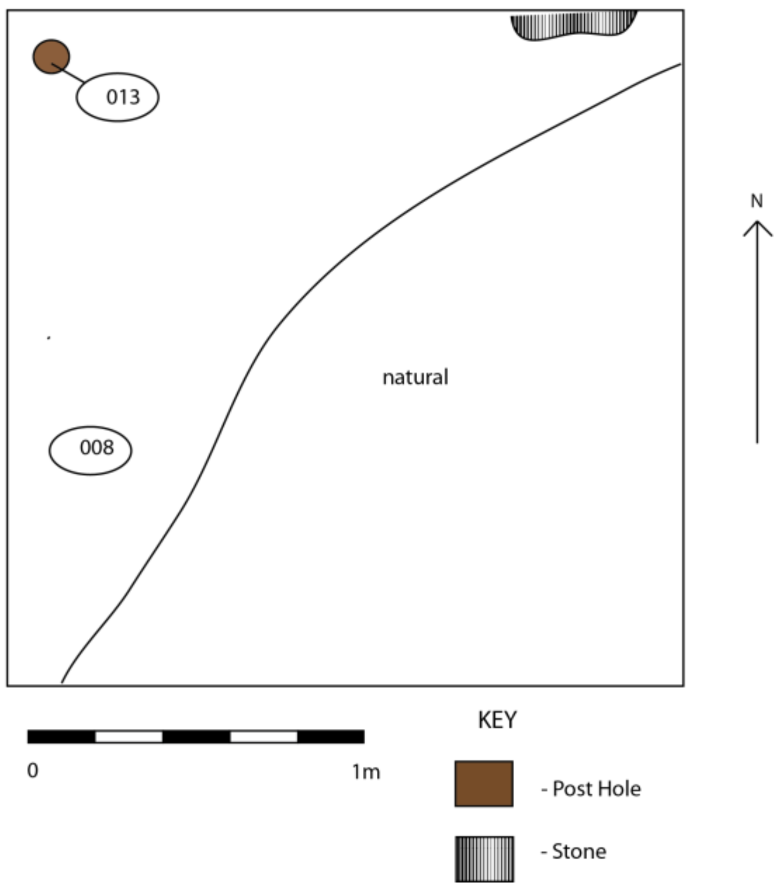


Figure 5. 26: plan of the excavation trench from BKS 20, indicating the relation of post hole context 013 to context 008.

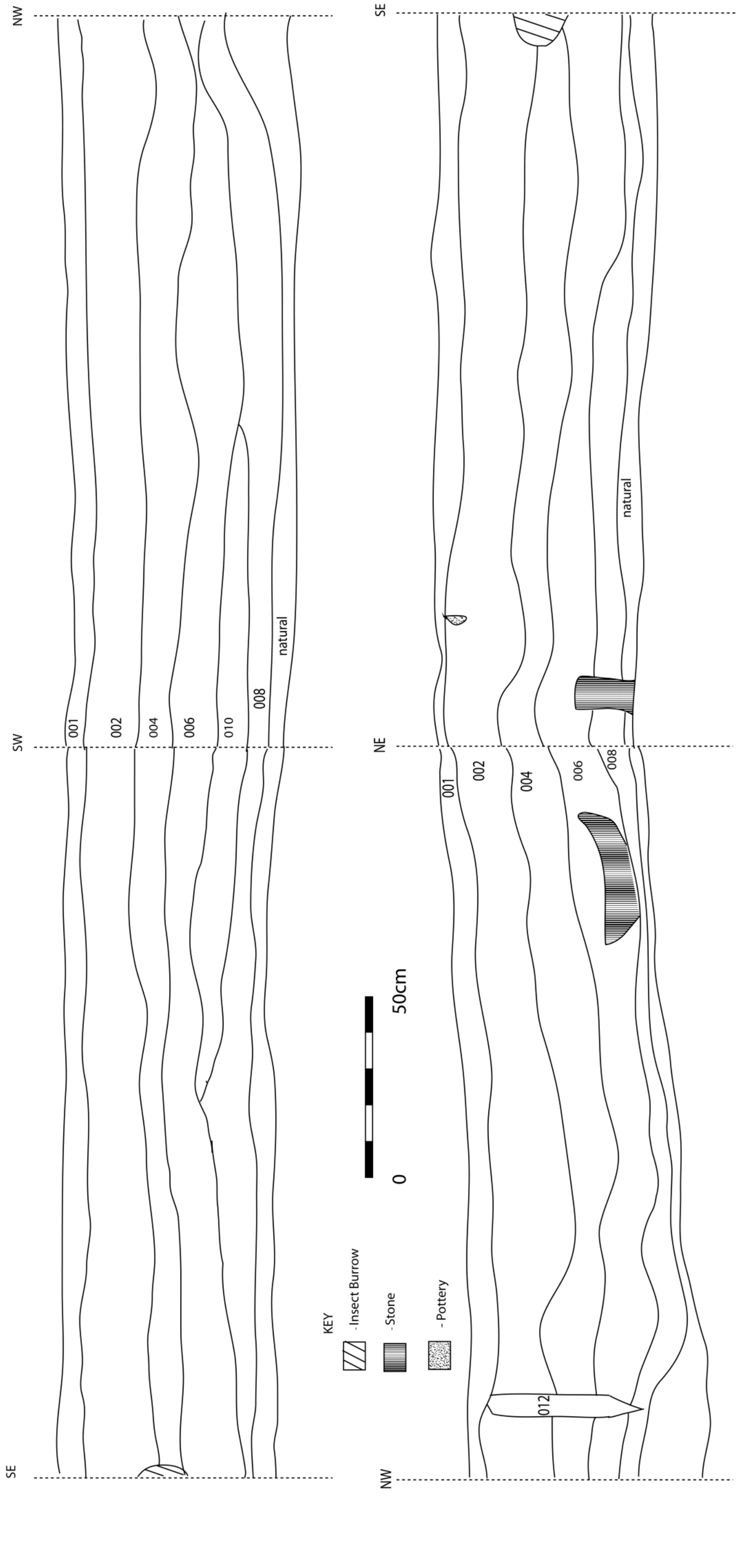


Figure 5. 27: Section drawings of the excavation trench at BKS 20

OSL dates of potsherds from BKS 20 and implications for the dating of excavated contexts

Sherd Code	Context	Lab Number	OSL estimate (years before 2014)	Error	Date Range
004/52	004	X6447B	790	70	AD 1154 - 1294
006/101	006	X6448B	760	50	AD 1204 - 1304
008/62	008	X6449B	910	100	AD 1004 - 1204
008/54	008	X6449A	740	70	AD 1204 - 1344
004/75	004	X6447A	70	10	AD 1934 -1954*
006/105	006	X6448A	190	10	AD 1814 - 1834*

Table 5. 7: dated potsherds from BKS 20. (*these two sherds are considered erroneous; see discussion below)

Two sherds from context 004, two sherds from context 006, and two sherds from context 008 were submitted to the Oxford Labs for direct OSL dating. Table 5.7 lists the sherds with their resulting dates. The initial four dates have been accepted as accurate (sherd codes 004/52, 006/101, 008/62, and 008/54), as a conceivable overlap in all four gives an estimate of AD 1204 for the main archaeological occupation at the site. The final two sherds (004/75 and 006/105) have produced an OSL date 700 years later than the other sherds of the same contexts. This would either indicate that these two younger sherds are intrusive, or that the dating method is flawed. The presence of insect and plant activity within the trench could be responsible for post depositional mixing which would introduce younger sherds into the lower levels of the trench. While OSL dating is more reliable than radiocarbon dating as the ceramics are being dated directly and results do not need calibrating in accordance with atmospheric levels of carbon, not all ceramics are able to produce viable OSL dates due to variations in the concentration of radioisotopes within each sample. The results from the Oxford OSL dating labs indicate that while the initial three samples in Table 5.7 were dated without an problems, the lower three (sherd codes 008/54, 004/75 and 006/105) contained erratic radioisotope levels and thus the beta dose rates used within the lab for the initial samples could not be used to produce a secure date. Subsequent elemental analysis was required, and as a result the dates for these sherds have the potential to be less accurate (J-L. Schwenninger, pers. Comm.). Considering four out of six sherds produced a date overlap of AD 1204 this can be taken as the secure date for the site, and the two younger dates may be disregarded as inadequate samples.

In light of these dates we can now reconsider the stratigraphic sequence at BKS 20. There are three main horizons of archaeological activity from contexts 004, 006, and 008. Context 006 contains the greatest density of archaeological material, while comparable amounts were found between both contexts 004 and 008. It is unlikely that the spread of material into contexts 004 and 008 is a result of post depositional mixing of the archaeology vertically within the trench due to the density of material within 004 and 008. In comparison to other excavated sites presented in this chapter, the mixing of the archaeological layer with sterile soil is recognisable by a great reduction in the density of sherds within the mixed layers. The overlap of dates between sherds from all three contexts at AD 1204 instead suggests a continued occupation at the site. As one sherd from context 008 has a date range which suggests a slightly older occupation from AD 1004 – 1204, it seems likely the site was occupied for a couple of centuries around the AD 1204 date. From this the post holes can be dated after AD 1204, though the true age of the structure cannot be ascertained without further investigation.

The presence of iron slag between context 008 and the surface would indicate that iron smelting was taking place at or near BKS 20 around AD 1204. The presence of the iron spearhead at the bottom of context 008 in an area away from insect disturbance also suggests tools were either being brought to or manufactured at BKS 20 around or prior to AD 1204. As of yet nothing is known of house/building structures nor iron smelting sites from the Lake Basin during this time period, and thus there are no points of comparison for these remains. Therein lies great potential for future work at BKS 20 to reveal information on currently unknown elements of past socio-economics within the Sesse Islands.

5.5 Bubeke Island Survey Sites

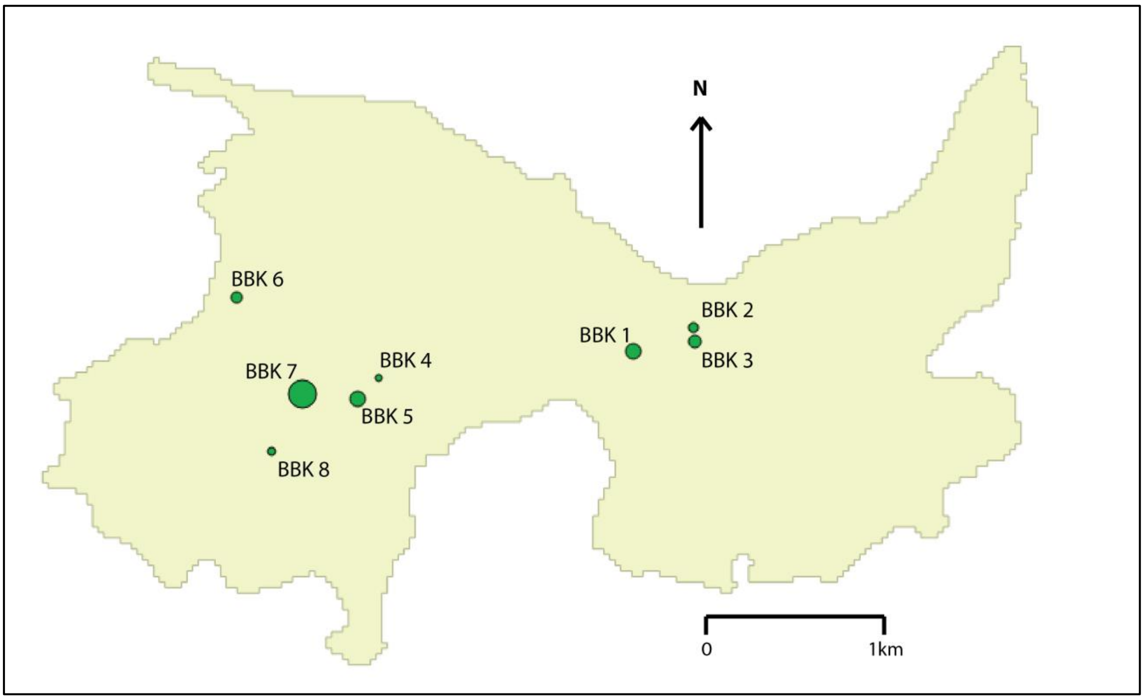


Figure 5. 28: Locations and size of sites encountered during survey on Bubeke Island

Bubeke Island is roughly the same size as Bubembe (5km x 3km), and is the most remotely located island in this study, positioned at the far north east of the Sesse archipelago. Bubeke is not as densely forested as Bubembe and Bukasa, with more tall grassland; the exposure of the island may be a factor in its vegetation, as the whole eastern coast would be buffeted by winds travelling long distances across the lake with no other islands to provide shelter. Eight sites were recorded during survey (BBK 1 – BBK 8) with a total of 255 pot sherds. Figure 5.28 indicates the location and size of each site assemblage on Bukasa Island. All eight sites were located on the hill tops or upper slopes of the island, with half located within five hundred metres of the lakeshore and the remainder one kilometre from the shore. There were no visible religious sites on the island, and no caves or rock shelters were sourced during survey. Site clustering was not as dense and site sizes were not as large as on Bubembe and Bukasa; this may potentially be attributed to the relative isolation of Bubeke in the archipelago compared to the more accessible sites. Ceramics were the main archaeological material, with iron slag only recorded at site BBK 1 and no other archaeological remains present in the surface survey (see Table 5.8).

Site name	Total number of sherds	Sherd density per metre	Other remains
BBK 1	28	0.93	slag
BBK 2	9	0.90	
BBK 3	53	1.77	
BBK 4	63	4.20	
BBK 5	38	1.90	
BBK 6	18	0.90	
BBK 7	130	4.33	
BBK 8	16	2.00	

Table 5. 8: artefact densities and archaeological remains associated with survey sites on Bubeke Island

5.6 Bubeke Excavation Sites

The graph in Figure 5.29 indicates the surface sherd density of each site on Bubeke. BBK7 and BBK 4 stand out with the highest densities; all other sites exhibit an artefact density below average for the island. Decorative variability is low at the survey sites, with an average of 3; however this is skewed by the presence of a single pot with 3 different decorative techniques at BBK 8 which gives the site a variety of 6 decorations overall. Aside from BBK 8, site BBK 7 exhibits the greatest decorative variability, and BBK 1 and BBK 5 both have a greater than average variety of decoration. The average number of rim forms present at survey sites is 4. Site BBK 1 has the greatest rim form variety at 7, and sites BBK 5 and BBK 6 have an above average value. The rim form variability at BBK 7 is average. Therefore a decision was made to excavate trenches at BBK 7 due to the high artefact density and presence of a wide range of decorative variability, and BBK 1 for its above average decorative and rim form variability and the presence of iron slag in its assemblage. Due to time constraints towards the end of the field season the trench at BBK 1 only measured 2m x 1m in size, which is half the size of the excavations elsewhere. BBK 8 was also excavated with a 2m x 1m trench, though the reason for this was simply because the site was located close to the camp and could be excavated quickly while waiting for a couple of days at the end of the field season for the local boat to arrive and take us back to the mainland.

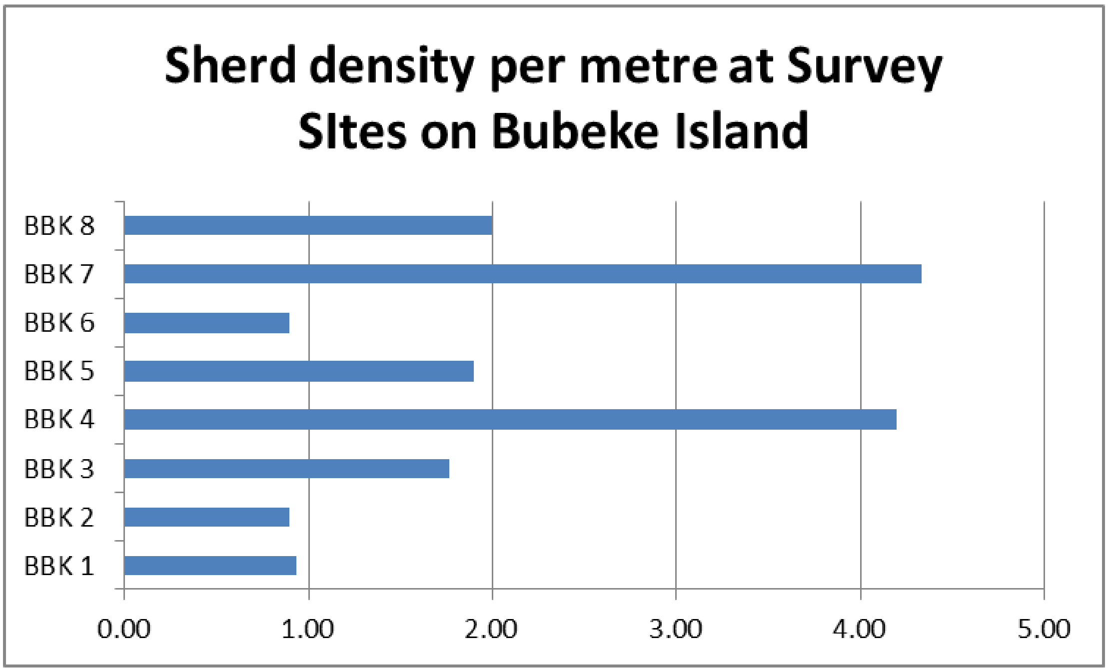


Figure 5. 29: Sherd density at survey sites on Bubeke Island

5.6.1 Site Bubeke 7

The surface collection of Bubeke 7 (BBK 7) was recovered from farmland on an upper hill slope adjacent to a homestead in the Konde region, located 1 – 1.5km from the lakeshore in the south-western half of Bubeke Island (GPS coordinates: 00°19.92 S, 032°34.928 E; altitude: 1195m). This 130 sherd surface assemblage exhibited the highest sherd density for any site on Bubeke Island, alongside a high variability in decorative technique for the island (KPR, stylus, cord-wrapped paddle, CWR, grass). Therefore a 2x2m trench was dug at BBK 7 in the compound close to the farmland from which the surface assemblage was derived, the location of which is indicated on Figure 5.30. In excavation three contexts were encountered (see Table 5.9), yielding an unexpectedly low number of 27 sub-surface sherds to a depth of 47cm; almost five times more sherds were collected from the surface of the site.

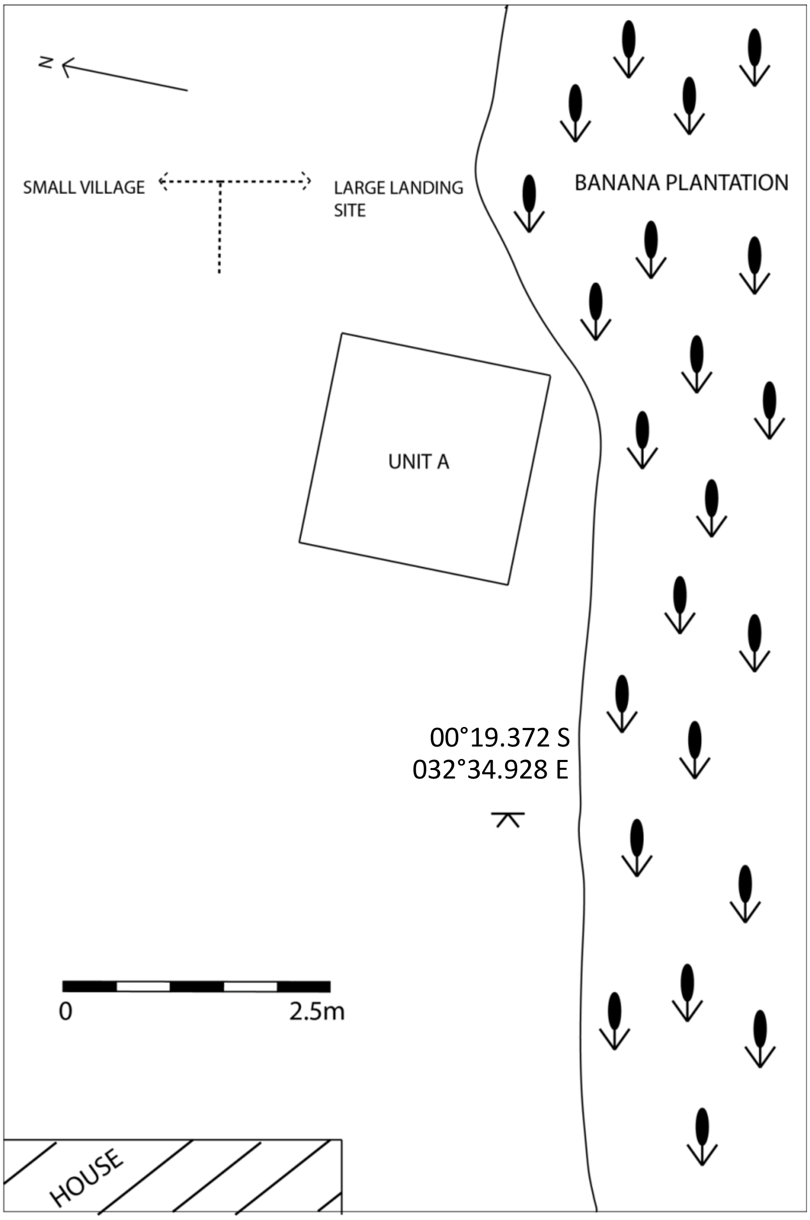


Figure 5. 30: site plan from BBK 7 indicating location of excavation unit in relation to surrounding modern features

Context	Depth below surface	Description
001	0 - 7cm	uppermost disturbed layer of trench
002	7 - 40cm	intermediate layer formed from a mixing of context 001 with the underlying sterile soil
003	40 - 47cm	sterile basal layer of trench

Table 5. 9: a description of sub-surface contexts from the excavation unit at BBK 7

Context 001 contained a shallow, loose and dusty greyish-brown topsoil, interfered by many roots and small stones. Only 1 potsherd and 30g of fragmented ceramics were recovered from this fill. The subsequent context 002 was characterised by a loose, brown-orange clayey silt soil featuring many plant roots and stones. Again a paltry amount of archaeological material was recovered from the trench in this layer: 24 potsherds and 200g of fragmented sherds. Finally context 003 was almost completely sterile, containing 2 sherds and 40g of fragmented ceramics. This basal layer comprised of a compacted, orangey-brown clayey-silt matrix typical of the natural soil found across all island sites.

All soil was passed through a 5mm sieve to identify the presence of macro-remains, though none emerged aside from fragmented ceramics. No archaeological features were encountered within the trench and thus no trench plans have been presented here; Figure 5.31 illustrates the section drawings of the walls within the trench. The huge density of materials on the surface of BBK 7 followed by an almost complete absence of sub-surface ceramics suggests the main archaeological horizon at this site has already been exposed and displaced, either by human action or natural erosion. A full analysis and discussion of the excavated ceramics is provided in Chapter 6 Part 2.

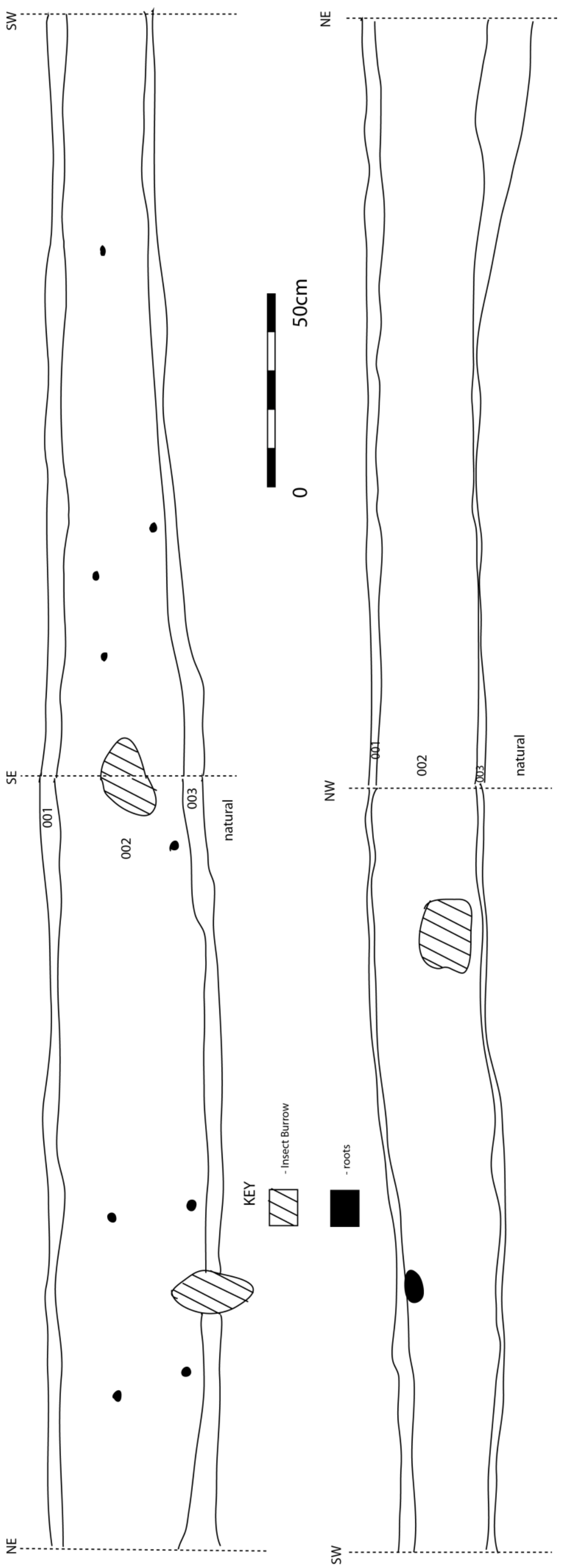


Figure 5. 31: section drawings of the excavation trench at BBK 7

5.6.2 Site Bubeke 1

The surface remains of Bubeke 1 (BBK 1) were discovered in a house compound and associated farmland in the Bulega area east of the centre of Bubeke Island, specifically to the left of the path leading from the Kawufu landing site across the island to Namisoke. The site was located 0.5 – 1km from the lakeshore on a hilltop, with sparse forest and short grass vegetation interspersed by farms (GPS coordinates 00°19.546 S, 032°36.078 E; altitude 1182m). While the 28 sherds from the surface collection BBK 1 gave a below average density for the island, the assemblage contained the greatest variety of rim forms (seven different forms) and decorative techniques (KPR, stylus, CWR, clay roulette). BBK 1 provided the only surface collection containing iron slag, thus adding to its archaeological interest.

Due to time constraints a half-sized 2x1m trench was dug at BBK 1 in the compound adjacent to the farmland from which the majority of the sherds were derived. This is illustrated in Figure 5.32. The excavation produced 129 sherds in its three sub-surface layers to a depth of 45cm. Though this sherd count initially appears small, considering this trench was half the size of other excavation units presented in this chapter the sub-surface sherd density is actually high. Table 5.10 provides a summary of the contexts present within the trench.

Context	Depth below surface	Description
001	0 - 12cm	uppermost disturbed layer of trench
002	12 - 33cm	disturbed layer representing main horizon of archaeological activity
003	33 - 45cm	sterile soil with some intrusive sherds in one side of the trench

Table 5. 10: a description of the sub-surface contexts from the excavation at BBK 1

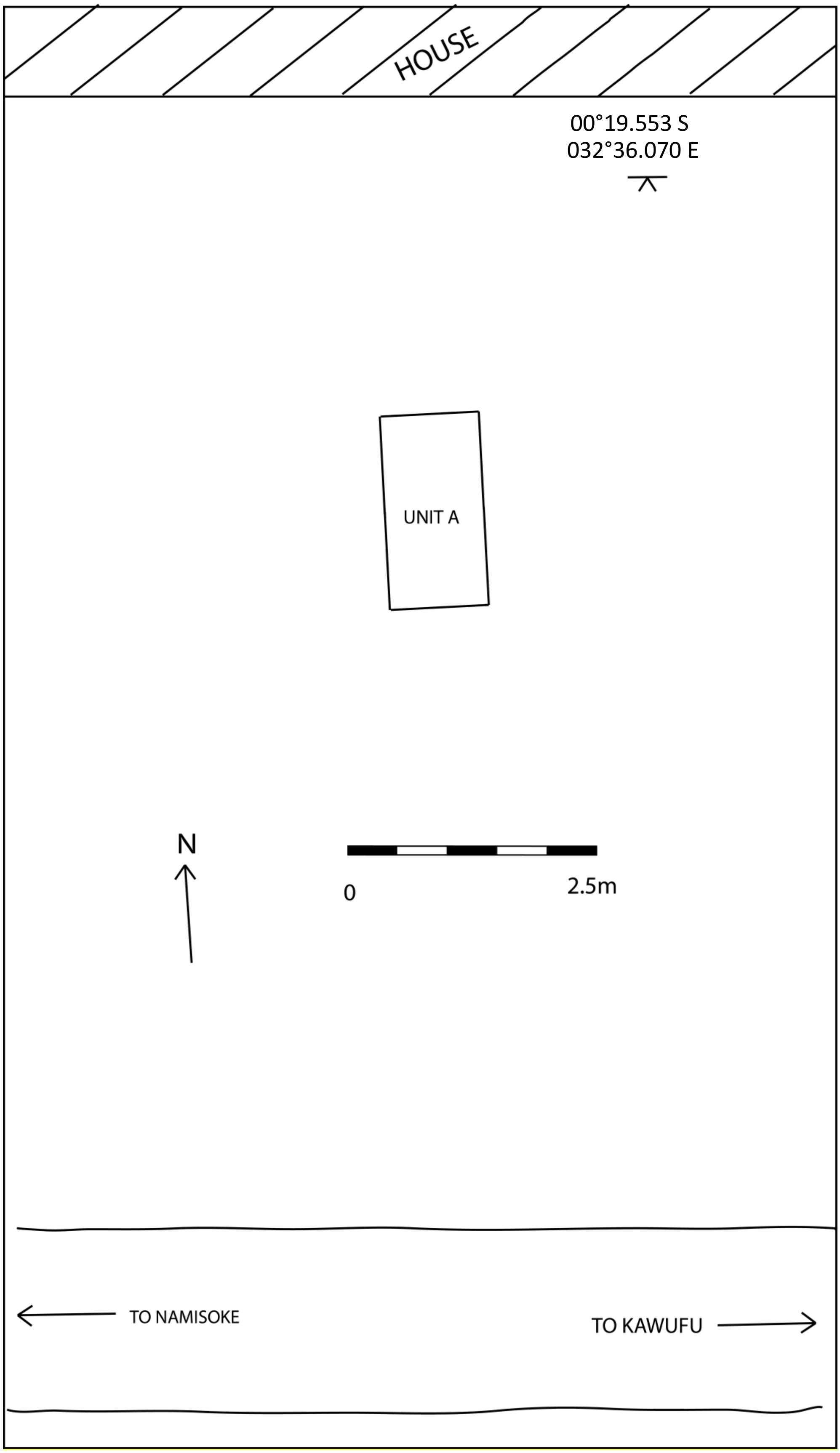


Figure 5. 32: Site plan from BBK1 indicating location of excavation unit in relation to homestead

Context 001 was characterised by a very compact, brownish-orange clayey-silt soil, which has been recognised as characteristic of the Sesse Islands. The compaction is likely caused by the location of the trench within a beaten earth compound. Being the uppermost layer of the trench this context is highly disturbed by small plant roots and insect burrowing, reflected by the presence of modern plastic and chinaware, though 28% of all analysed ceramics and 49% of all fragmented ceramics were also recovered from this layer.

The underlying context 002 contained a matching soil matrix composed of loose, brown-orange clayey-silt soil, though at this lower depth there are small stones, plant roots, and flecks of charcoal throughout the soil. The continued presence of modern rubbish highlights the disturbed nature of this layer. However this context is also contained the most archaeological material, producing 62% of all analysed ceramics and 44% of all fragmented ceramics. An important archaeological find from context 002 included a very fragmented tuyere caked with pieces of pale, slightly greenish, brittle and very porous iron slag. Direct evidence for iron smelting in the Sesse Islands so far has been characterised by the occasional surface presence of iron slag, which rarely extends below ground in any great quantity. This find from BBK 1, though fragmented, may be the first tuyere recovered within the islands. Upon being shown to a metallurgist familiar with the Great Lakes region, it appears that the very porous and lightly coloured slag deposits associated with the tuyere are characteristic of Early Iron Age smelting technologies (J. Humphris, pers. comm.). As the tuyere is very fragmented and the contexts within the trench are disturbed, this is only speculative, though potentially BBK 1 may represent the first ever EIA iron smelting site recorded in Uganda.

Context 003 contained a compacted orangey-brown clayey-silt soil inflicted with roots, stones, and insect activity. This layer represents a slight mixing of archaeological remains from the preceding layer with the underlying sterile soil. Context 003 was largely sterile albeit a small concentration of pottery in the north-west corner, which accounted for 10% of the sherds within the trench. Due to the absence of archaeological features no trench plans have been presented here. The section drawing in Figure 5.33 highlights the presence of sub-surface disturbances within the trench.

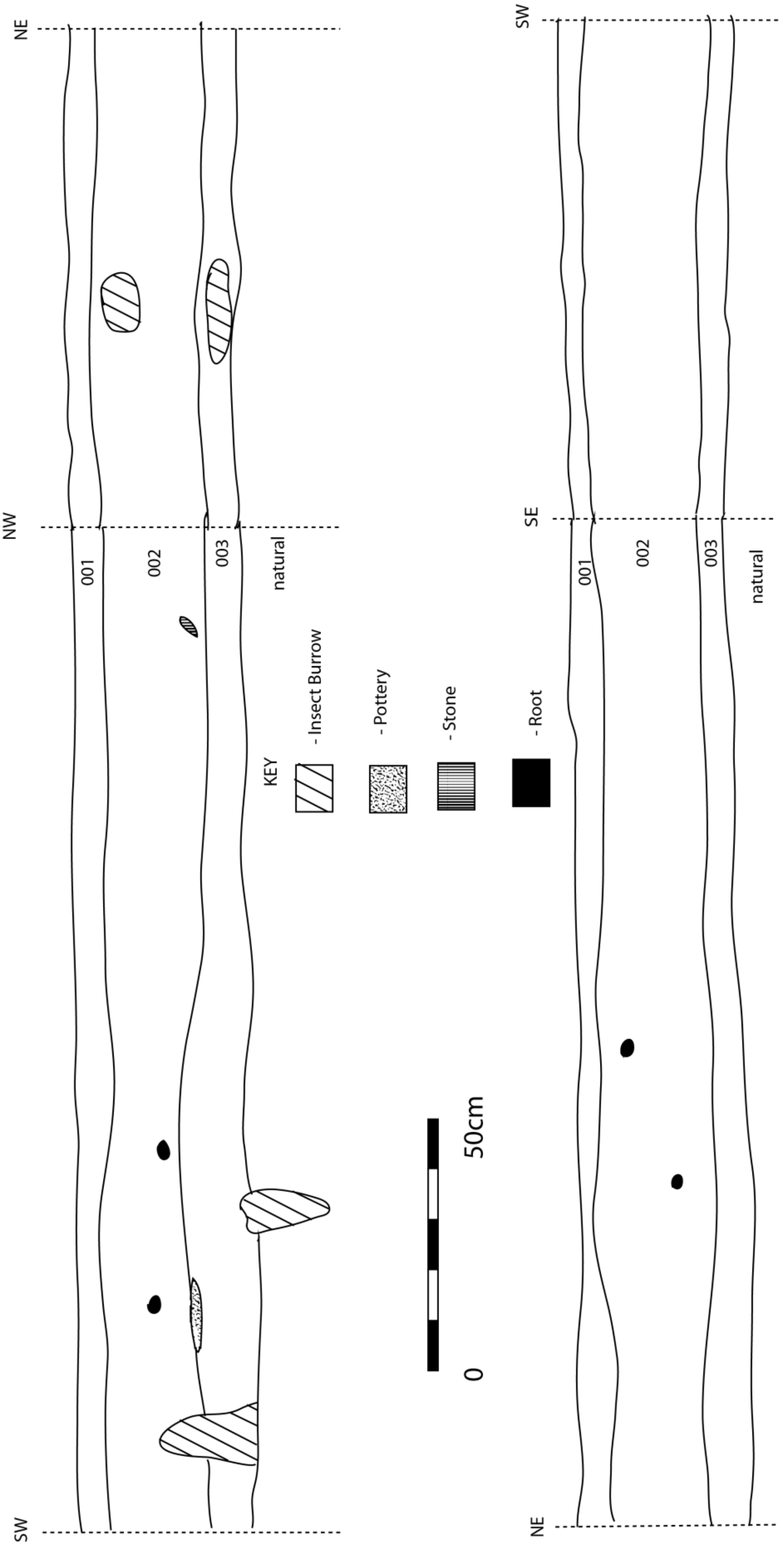


Figure 5. 33: section drawings from the excavation trench at BBK 1

All soil removed from the trench was passed through a 5mm sieve to recover macro remains, though none were identified aside from fragmented ceramics. Compared to sites on Bubembe and Bukasa Islands, the overall amount of fragmented sherds below 2x2cm at BBK 1 is a lot lower (550g). This could be due to less post-depositional disturbance on Bubeke Island; there is a much lower incidence of tropical forest vegetation suggesting a lesser build-up of fertile humic material on the surface, the presence of which would encourage roots and insect/animal activity. Despite the presence of insect disturbance within the trench, there may be less disturbance at the site overall. Furthermore Bubeke Island has a much lower population and is much less developed than Bubembe and Bukasa, suggesting less human activity in the upper layers of the soil. Both reasons could explain the lower levels of fragmentation seen here. A full analysis of the excavated ceramics from BBK 1 is presented and discussed in Chapter 6 Part 2.

5.6.3 Site Bubeke 8

The surface scatter of Bubeke 8 (BBK 8) was located in the exposed ground of a compound belonging to the Kande hospital, on an upper hill slope 1km from the lakeshore. Though the surface assemblage had a low ceramic density with only 16 sherds with little diversity of rim form (3 different forms recorded) and no other archaeological remains, BBK 8 was excavated with a 2x1m trench, located where the excavation would not hinder the passage of patients and residents moving through the hospital compound (illustrated in Figure 5.34). The reason for this excavation was simply because the site was located close adjacent to the camp and could be excavated quickly while waiting at the end of the field season for the local boat to arrive and transport us back to the mainland.

Three sub-surface contexts were encountered at BBK 8 to a shallow depth of 29cm, and these are described in Table 5.11. Only 26 sub-surface sherds were recovered from the trench at BBK 8, and therefore the ceramics have not been subject to a detailed ceramic analysis in Chapter 6 Part 2, as attribute counts are too low for statistical analyses to be considered viable.

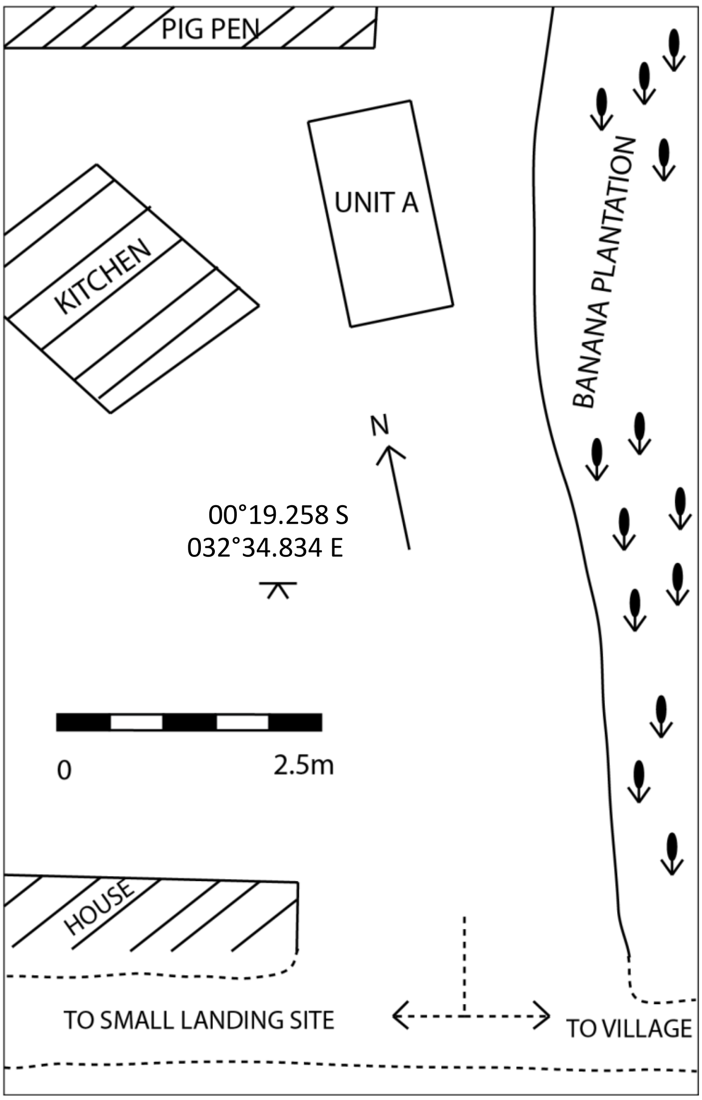


Figure 5. 34: Plan of site BBK 8 indicating the location of the trench in relation to surrounding modern features

Context	Depth below surface	Description
001	0 - 11cm	uppermost disturbed layer of trench
002	11 - 18cm	very disturbed intermediate layer formed from a mixing of context 001 with the underlying sterile soil
003	18 - 29cm	sterile basal layer of trench

Table 5. 11: a description of the sub-surface contexts encountered during excavation at BBK 8

The fill of context 001 was characterised by a very dry, compacted, light brown-orange silty topsoil containing lots of stones and small roots. The context was highly disturbed, with very few ceramics and the presence of a variety of buried modern refuse (hair weave, string, fishing nets, chinaware, linoleum, etc). Context 002 was comprised of an identical soil matrix, containing small stones, roots, and much insect activity with few potsherds. This appears to be an intermediate layer between the topsoil and sterile soil below. Context 003 contained a compacted orangey-brown clayey-silt soil, which was largely sterile and mottled with small stones and plant roots. Figure 5.35 illustrates these contexts in section.

All soil was sieved to recover macro-remains, though none emerged from the trench. Due to the paucity of surface remains and sub-surface remains at BBK 8, it is likely all ceramics at the site arrived by post-depositional action. Excavation at the site may be considered a test as to whether areas with a low density of surface ceramics on Bubeke are likely to yield a greater number of sub-surface ceramics; evidently not.

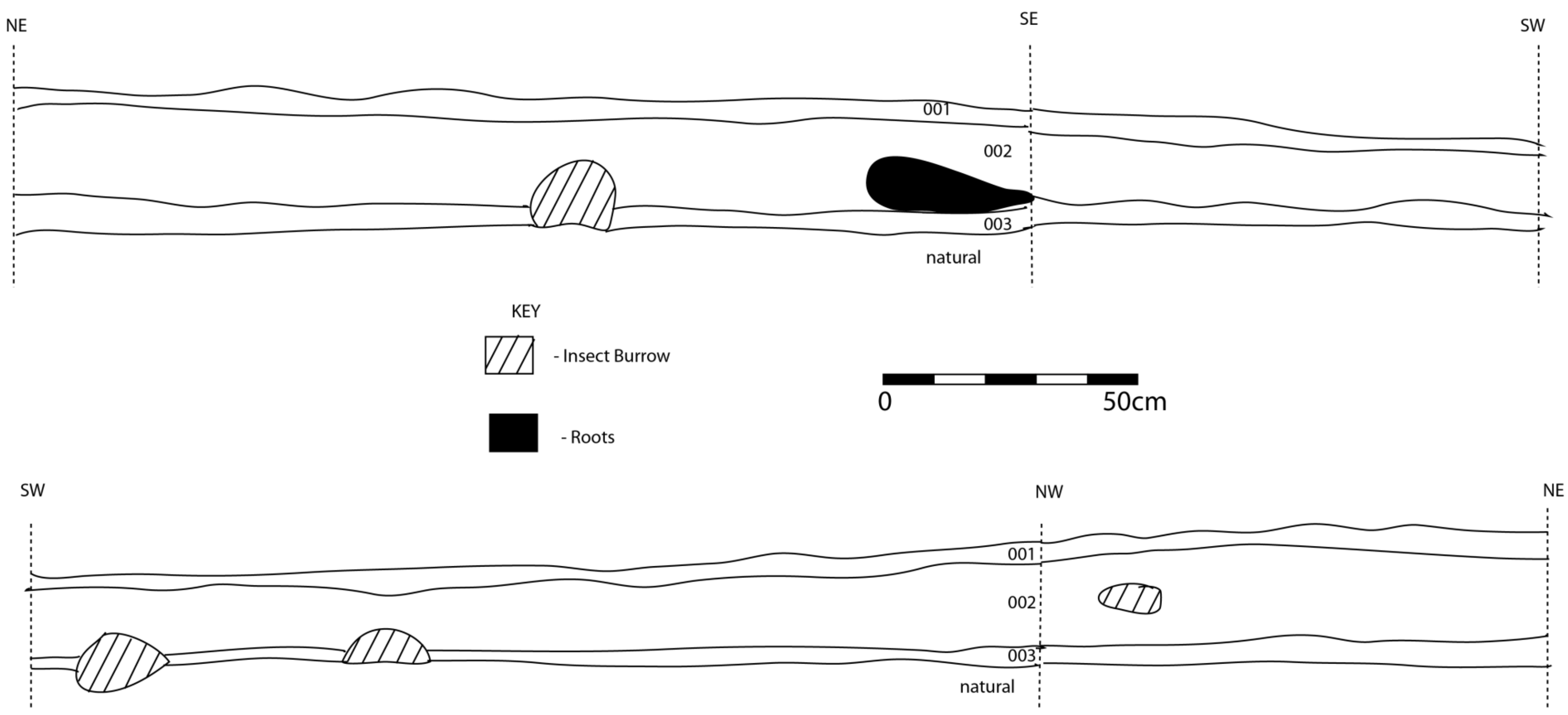


Figure 5. 35: section drawings from the trench at BBK 8. Note the dense area of plant roots, indicating the highly disturbed nature of these largely sterile contexts

5.7 Survey Summary

These fieldwork results contradict Fagan and Lofgren's earlier research which suggested no Iron Age archaeology of interest can be found on Bukasa and Bubeke Islands, and that vegetation on Bubembe Island makes it impossible to conduct archaeological survey (Fagan and Lofgren 1966a; 1968). A number of sites have been recorded on all three islands despite the dense and often impenetrable vegetation, which proves the utility of Schiffer's and Robertshaw's approaches to archaeological survey in tropical and forested environments (Schiffer et al. 1978; Robertshaw 1994). Considering this survey only focussed on naturally and artificially exposed areas of ground and local knowledge in the sourcing of sites due to the inability to perform regimented transect surveys, we can suggest that a number of sites remain hidden in the dense vegetation, and the true extent of settlements on each island may be substantially greater in number. Currently site patterning seems to indicate a preference for upper hill slopes and hill tops on all islands (see Table 5.12), which could be interpreted as selective settlement patterning and could be justified as defensive; these locations provide the ability to observe any boats approaching the island from multiple directions across the lake. These locations also make sense during the rainy season, as surface run off down slope would leave settlements dry rather than swamped. However the sourcing of sites at these locations may simply reflect the choice of modern populations to place their farms and homesteads upslope for the benefits of water run-off, or the natural pre-disposition for ground exposure due to down-hill erosional wash. Without a greater exploration of the vegetated parts of the islands we cannot comment upon site location within the individual islands.

Island	No. Sites on Hilltop	No. Sites on Upper Slope	No. Sites on mid slope	No. Sites on lower slope
Bubembe Island	10	1	2	0
Bukasa Island	19	19	0	1
Bubeke Island	5	3	0	0

Table 5. 12: Survey site locations relative to hill slope

However it may be justifiable to comment upon the site numbers encountered between the islands. In Chapter 1 I examined the theories of Coastal and Islands Archaeology, which suggests that island sites are affected by degrees of interaction and isolation, with island resources generally presumed to be more restricted than on the mainland. Bukasa is the largest island and most likely holds a greater wealth of resources that Bubembe and Bubeke. Its ability to support a larger population may explain why 40 sites were located here, while Bubembe only yielded 12, and the most remote and isolated island Bubeke only produced 8 sites, despite a lower level of vegetation and greater visibility of the ground surface.

Rim form and decorative variability are more comparable between the three islands; the average number of decorative techniques present per surface assemblage on Bubembe is 4, Bukasa is 4.5 and Bubeke is 3.5. The rim form variability on Bubembe is 3, on Bukasa it is 5, and on Bubeke it is 4. This suggests that interaction, isolation and resource availability may affect the number of settlements, but not the range of ceramics being produced. The attribute-based ceramic analysis of the survey assemblages in Chapter 6 Part 1 will ascertain in more detail how ceramic attributes alter spatially across the study region.

Sub-surface assemblages were larger on Bukasa, which may be reflective of resource availability allowing for the support of larger populations on the island. The combined sherd total from the two excavations on each island gave 831 for Bukasa, which is almost twice that for Bubembe (472) and Bubeke (424; the sherd total from excavations at BBK 1 was doubled to make the 2 x 1m trench comparable to the 2 x 2m excavation units at other sites). In the sub-surface remains the Bubeke assemblages are almost comparable in size to Bubembe, though still slightly smaller. This of course does not account for the volume of fragmented sherds under 2x2cm in size which were weighed and removed from the excavated sherd analysis. The weight of the fragmented sherds from excavated contexts on Bubembe Island came to 2.63kg, whereas on Bubeke this was only 1.37kg (after doubling values from BBK 1 to standardise them for a comparison). Therefore the excavated assemblage size on Bubembe Island is larger than on Bubeke. Again an attribute-based ceramic analysis of all excavation ceramics in Chapter 6 Part 2 will provide a greater understanding of this ceramic patterning between the islands and temporal ceramic change within the individual trenches.

Chapter 6 Analysis of Fieldwork Ceramics

The ceramics acquired during the field study will now be analysed to elucidate both spatial patterning over geographic areas, and temporal patterning with depth. In part 1 this analysis will initially focus on spatial patterning of surface ceramics recovered during survey to identify sites worthy of note within the study area, and to highlight common and rare attributes associated with the regional ceramics. Subsequently the surface collections of each of the three islands will be compared to identify any spatial associations between specific ceramic attributes and the bounded island communities as a whole.

Following this spatial analysis, in part 2 of this chapter I will consider temporal dimensions based on the ceramic assemblages acquired from my excavations at the six chosen sites from the three islands. The ceramic assemblages from each site will be analysed in detail to identify which attributes are associated with deeper stratigraphy, and which are associated with shallower contexts. Due to the general lack of stratigraphy and the single horizon nature of previous archaeological excavations on Bugala Island and at other lakeshore sites (often characterised by single pits or shallow rock shelter deposits; see Ashley 2005; 2010; Ashley and Reid 2008; Posnansky 1961b; 1961a; 1967; Posnansky and Chaplin 1968; Posnansky et al. 2005), in part 3 of this chapter an analysis will be conducted to broadly compare the grouped 'surface collections' of the entire fieldwork study region to all 'sub-surface' or 'excavation' ceramics. This will identify which ceramic attributes are more prevalent below ground and rarer on the surface, and vice versa, allowing very basic assumptions to be made about which ceramic attributes are more likely to have a greater time depth. Such assumptions are, of course, affected by post depositional mixing (e.g. agricultural ploughing) which may have brought buried material to the surface; however a broad analysis which considers all data from all sites in the fieldwork study should highlight potential patterns regardless of this mixing process. The results should provide a clearer picture of both spatial and temporal patterning of ceramic attributes within the primary data. Chapter 7 will analyse the comparative ceramic assemblages under the same methods, which will then be compared to the new fieldwork data to examine the wider spatial implications of the ceramic patterning, and consider temporal patterning between the excavated fieldwork sites and the dated comparative sites.

Chapter 6 Part 1: Surface Ceramics

All rim and base sherds and all decorated body sherds were collected from the surface of the archaeological sites identified during survey on Bubembe, Bukasa, and Bubeke, as detailed in the fieldwork methodology (Chapter 4). These sherds were recorded under the attribute-based method proposed in Chapter 3, and in the current chapter the results are subjected to a statistical analysis. This involves recognising attributes which appear in individual site collections in high enough proportions to be considered 'statistically significant', and subjecting them to a Chi Squared test to determine whether the 'Observed count' of the attribute within the collection exhibits a great enough difference from the 'Expected count' (based upon average proportions of the attribute in other fieldwork assemblages) to suggest it did not occur by chance but for some other reason, such as manufacturing choices. This methodology is explained in detail in Chapter 3, though here I will remind the reader that the 'Expected value' throughout the analysis is a function of the sample size being assessed in each case.

Initial analysis and results are presented for attributes which are an index of fabric (fabric coarseness, mineral inclusions and grog, and magnetism), followed by a consideration of decorative techniques. Finally rim sherd attributes are considered under the categories of vessel form, rim form, rim diameter, and rim thickness.

6.1.1 Surface Fabric Attribute Analysis: 'Fabric Coarseness'

Beginning with fabric coarseness, each potsherd was recorded as 'coarse' (grain size >0.5mm), 'medium' (grain size 0.25-0.5mm), or 'fine' (grain size <0.25mm) based on the grain size of the clay matrix as observed with a 25x magnification hand lens.

Coarse sherds are most common, followed by medium grained sherds. Fine grained sherds are rare, appearing in only 2.50% of all surface sherds (see Figure 6.1).

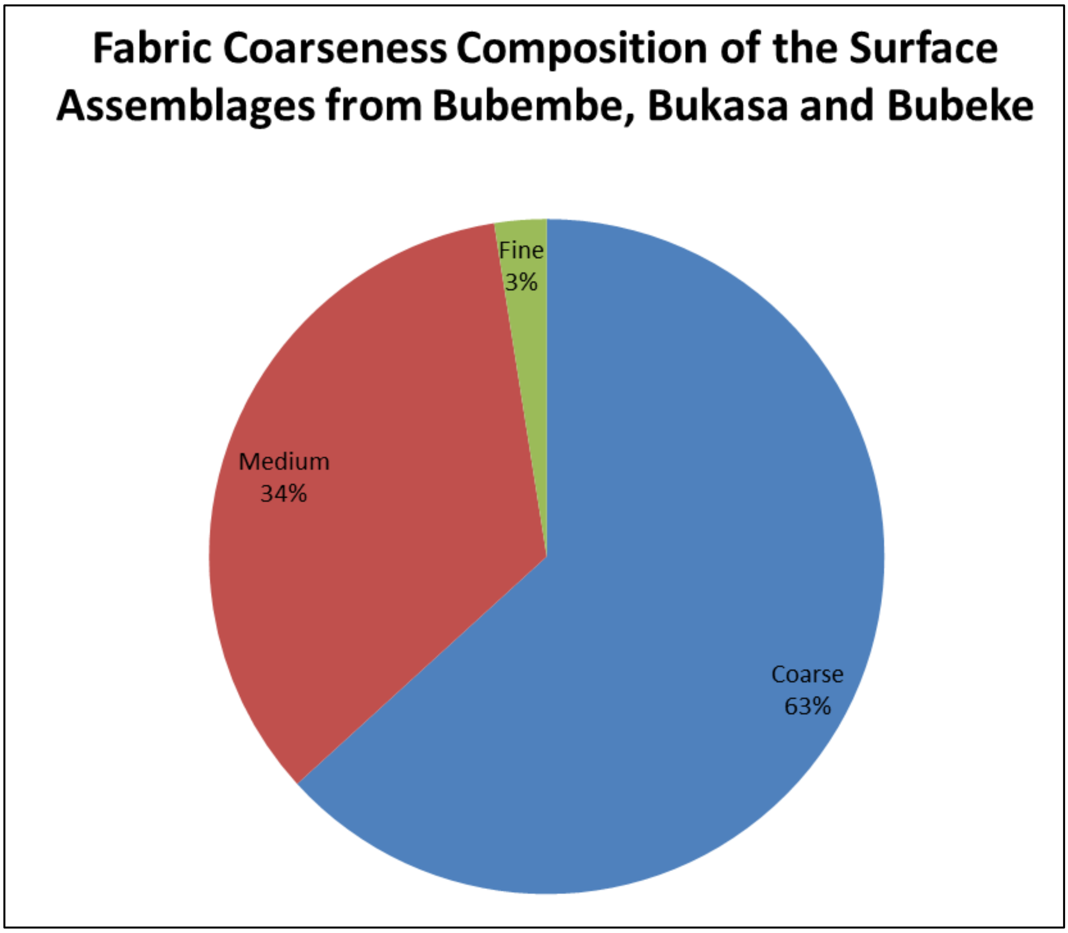


Figure 6. 1: Fabric coarseness composition of the surface assemblage from the study region (n = 1561)

From the fabric coarseness data for surface ceramics at individual sites, BKS 3 stands out with an abnormally low proportion of coarse grained sherds, and assemblages from BKS 14, BKS 13, and BKS 20 all contain an abnormally high proportion of fine grained sherds. Fabric Coarseness ratios at all other sites do not differ high or low enough from the average to imply a unique pattern. A subsequent Chi Squared test using the attribute counts from each site indicates that small overall assemblage sizes from BKS 3 and BKS 14 skew the data and no significant associations can be drawn. Due to low percentages of fine grained sherds throughout the survey region, the expected values for fine grained ceramics at both BKS 13 and BKS 20 fall below 5, which makes them too low for a Chi Squared test to be considered accurate (see Tables 6.1 and 6.2). However at BKS 13 we can see that both fine and medium grained sherds occur more frequently than expected; therefore they were grouped together to adjust the sample size for Chi Squared testing, with the result indicating that fine and medium grained fabrics occur more frequently than expected, and coarse grained sherds less frequently than expected for a sample of that size. At BKS 20 the level of fine grained sherds is much higher than expected (although the count of fine grained sherds are low, the expected value is calculated with a consideration of the appearance of fine-grained sherds and assemblage sizes from all other sites and thus the number of fine-grained sherds in comparison to assemblage size at BKS 20 is significant within this context. Note that any re-fitting sherds were only counted once as they could be identified as belonging to the same vessel), whereas the observed count of coarse grained sherds is at the expected level (see Table 6.2). Therefore the coarse and fine grained sherds were amalgamated for testing with the result reflective of the significance of the fine grained constituent as we already know there can be no difference between the observed and expected values of the coarse grained sherds. The results indicate that fine grained ceramics are indeed a distinct characteristic associated with the BKS 20 ceramic assemblage.

BKS 13			
	O	E	Total
Coarse	15	32.2152466	**898**
Medium	29	21.9910314	**613**
Fine	12	1.79372197	**50**
Total	**56**	**56**	**1561**

Table 6. 1: Observed (O) and Expected (E) values of different fabric coarseness groups in the surface assemblage from BKS 13 (For fine and medium grained ceramics critical Chi-value = 3.84; actual Chi-value= 21.66; P-value = 0.00003)

BKS 20			
	O	E	Total
Coarse	16	17.25816784	**898**
Medium	5	11.78090967	**613**
Fine	9	0.960922486	**50**
Total	**30**	**30**	**1561**

Table 6. 2: Observed (O) and Expected (E) values of different fabric coarseness groups in the surface assemblage from BKS 20 (For coarse and fine grained ceramics critical Chi-value = 3.84; actual Chi-value = 20.50; P-value = 0.00006)

Due to the association of fine grained sherds with specific sites, it is appropriate to consider the distribution of fine grained sherds within each site assemblage with sites ranked on a west to east basis. According to theories from Coastal and Islands Archaeology, varying degrees of isolation and interaction may affect the material culture of island populations, under the premise that more remote/isolated islands are afforded less opportunity to interact with larger and more diverse mainland communities, whereas islands more accessible to outsiders are more likely to occupy a privileged position of trade (see Chapter 1 for a more information on island theories)(Fitzpatrick and Anderson 2008; Fitzpatrick and Erlandson 2006; 2007; Rick and Fitzpatrick 2011; Boomert and Bright 2007; Fitzpatrick and Hunt 1997; Broodbank 2000; Rainbird 2007). Within the Sesse archipelago the westernmost islands and sites are closest to and most accessible from the mainland, whereas the easternmost sites are positioned further into the lake and are therefore more isolated (see Figure 6.2).

Sites are ranked based on their longitude, rather than a direct distance to the mainland coast. Using longitude gives an approximate ranking of sites in order of geographical distance which is deemed more useful here, as we currently do not possess additional information as to which parts of the mainland and island coastlines would be suitable for docking boats in the past, which would alter a distance reading of mainland shoreline to island site. Whilst there may be other factors to consider such as the ease of island hopping increasing access to some parts of the archipelago, we again cannot hypothesise about access routes in the absence of information on the historic political geography, efficiency of maritime technology, water currents, climate or environment, so we must simplify the pattern to west/east. Based on this premise we would expect ceramic diversity to be lower in the more isolated eastern sites, with the range of attributes found at sites further west influenced by trade and interaction with mainland populations.

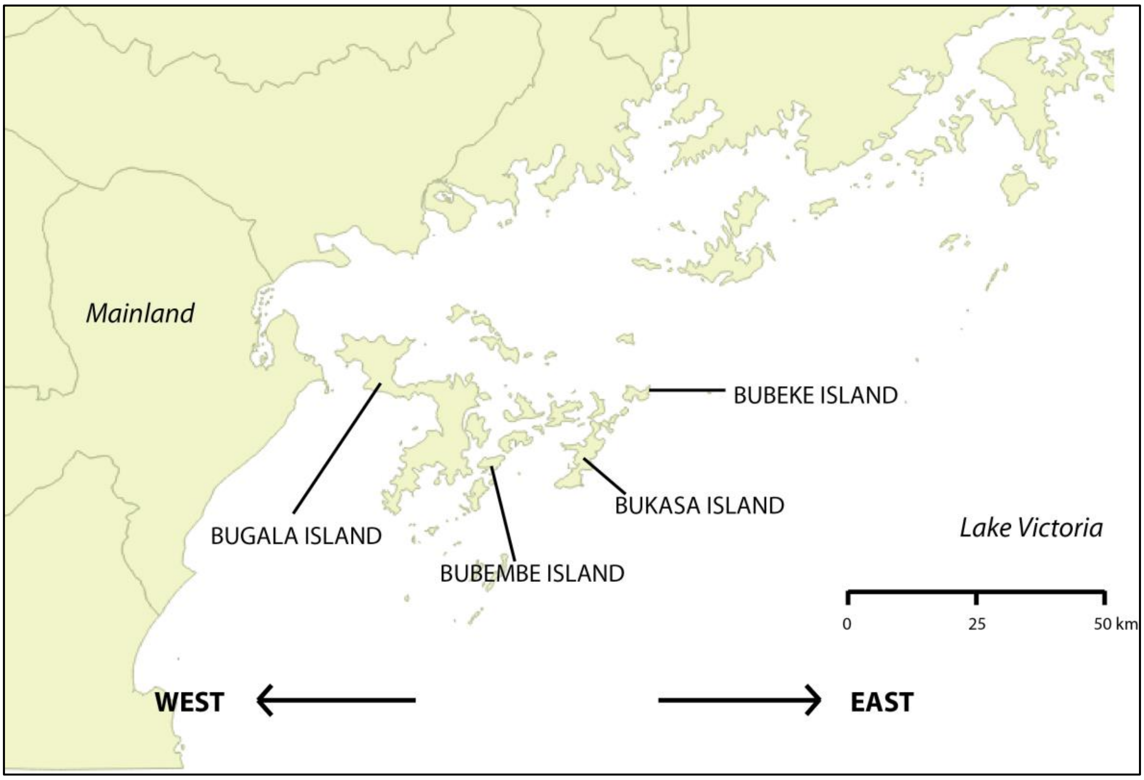


Figure 6. 2: Location of the islands mentioned in this text, indicating relative positioning in relation to the mainland shoreline and the open lake

Results of an analysis of the spatial data for fine grained sherds from surface assemblages suggests that there is no west to east patterning (see Figure 6.3). However the scatter of points shows two distinct peaks in the percentages of fine grained sherds with one cluster of sites around the centre of the west-east ranking, and a second smaller cluster further east. The location of the main cluster incorporates both BKS 20 and BKS 13, as illustrated on the map in Figure 6.4 which shows the fabric coarseness composition of sites in central Bukasa. Fine grained ceramics are rare overall, appearing in only 2.5% of all surface ceramics. However at BKS 20, 30% of the surface ceramics are fine-grained, and at BKS 13 21% of the surface assemblage is constructed from fine grained clays. Therefore some factor may be influencing a manufacturing choice in central Bukasa which favours fine-grained clays. Potential reasons for this are discussed in Chapter 8, which in light of later attribute patterning seem to indicate this prevalence of fine-grained clays is a local manufacturing trait which is unique to central Bukasa on a wider regional scale beyond the islands, and also may relate to the deposits being older, based upon a general increase in the use of fine grained clays with depth in the excavated assemblages from all three islands.

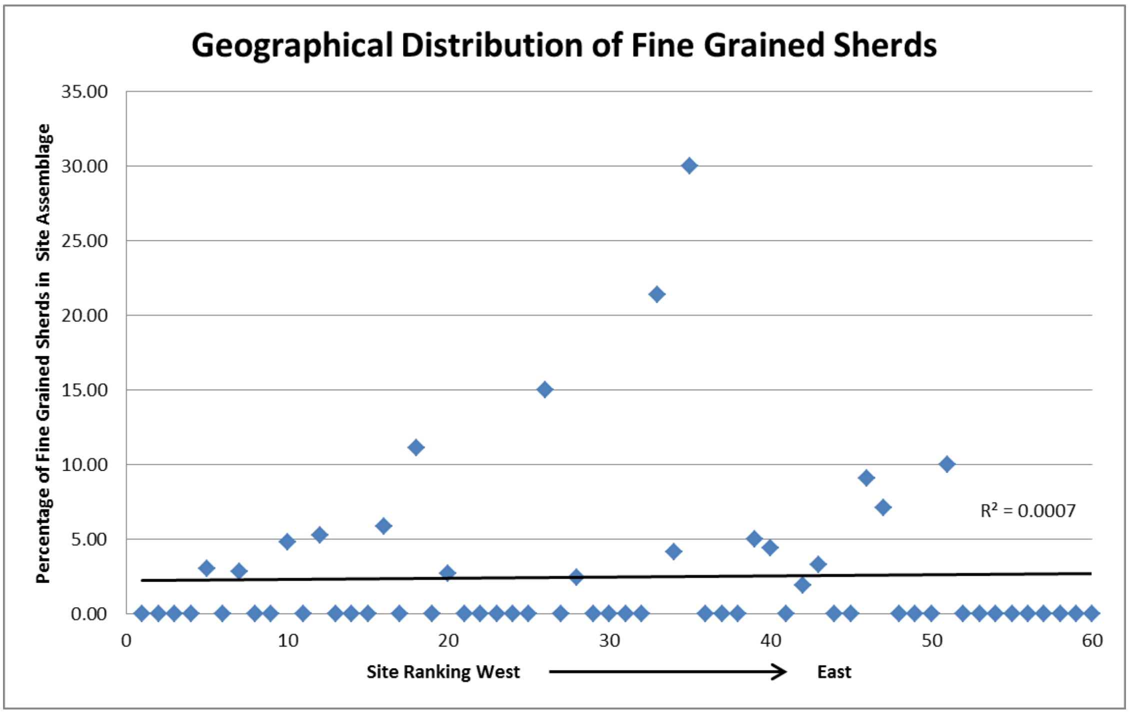


Figure 6. 3: Distribution of fine grained sherds on a west to east basis with regression line (n = 50)

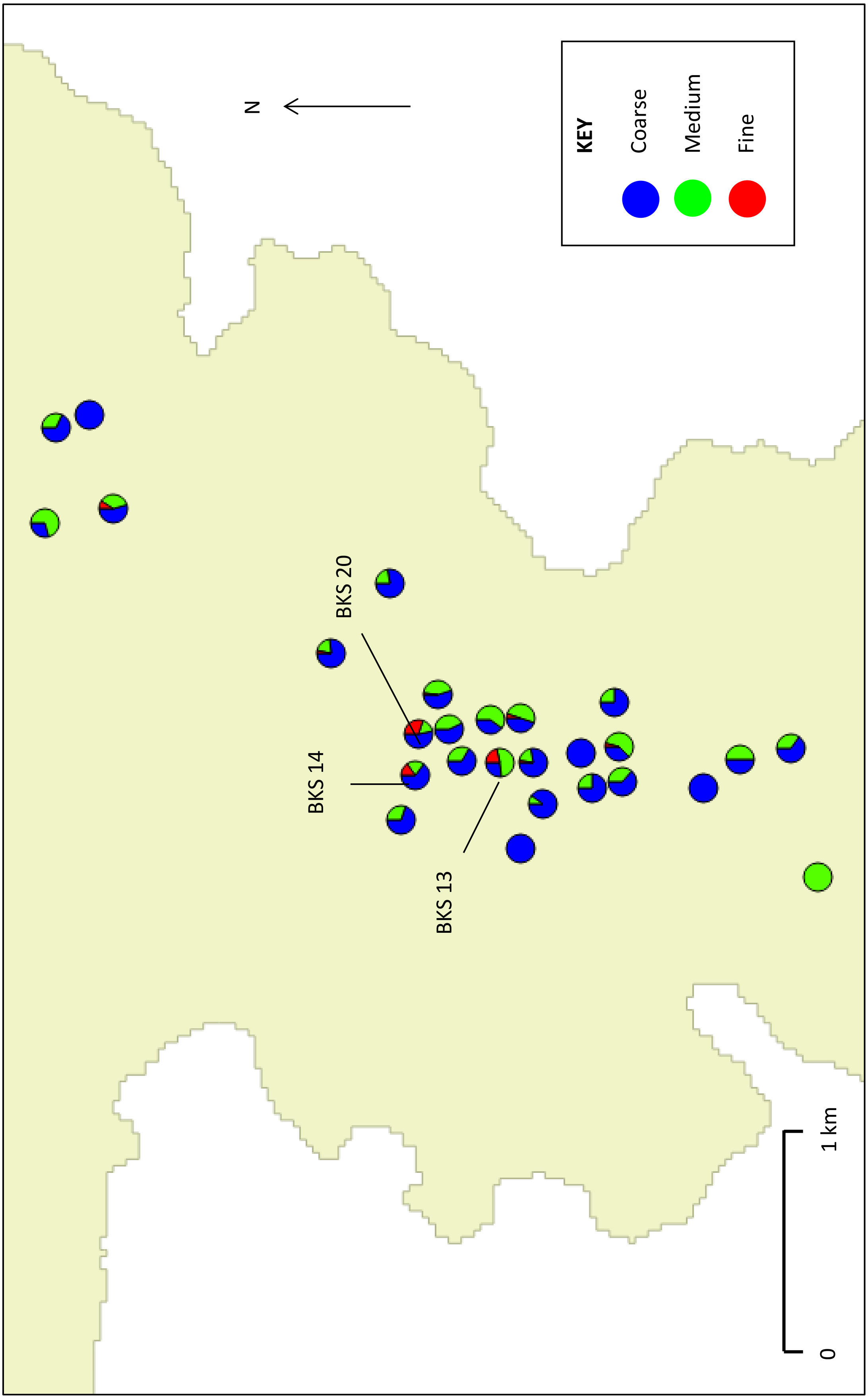


Figure 6. 4: The fabric coarseness composition of sites in central Bukasa, illustrating the uniquely high proportion of fine grained sherds at certain sites

6.1.2 Surface Fabric Attribute Analysis: Mineral Inclusions and Grog

Within the surface ceramics the following inclusions could be identified using a hand lens at 25x magnification: quartz, hematite, feldspar, mica, grog, limestone/shell, and rose quartz. It was not possible to determine whether the calcareous inclusions found within the ceramics were derived from limestone or shell due to the unavailability of acid for testing (limestone reacts with the acid, whereas shell does not (Rice 1987)). Figure 6.5 illustrates the contribution of each inclusion type to the overall total; quartz is the most numerous inclusion, which is unsurprising due to its natural abundance in the sandstone which characterises the geology of the islands (Westerhof et al. 2014 ; Merriman et al 2003; Lehto et al. 2014; see Chapter 1, Figure 1.3). Mica is almost as common as quartz, which is surprising; mica ranks at 2-3m on the MOHS scale of hardness, which is very soft and indicates it would be abraded away rapidly by the presence of harder minerals. As a basis of comparison a fingernail ranks at 2.5, whereas quartz measures 7 on the MOHS scale (Klein 1989; see also: www.mineraltown.com). Furthermore, mica is prevalent in the surrounding mainland geology but not specifically associated with the Sesse Formation sandstones (Westerhof et al. 2014; Lehto et al. 2014; see Chapter 1, Figure 1.3). Therefore a prevalence of mica may indicate the use of clay sources from nearby areas where mica is being newly eroded from freshly weathered rock, or the choice is being made to introduce fresh mica into clays during potting. Following quartz and mica, hematite is also common. Feldspar, grog and rose quartz occur infrequently and limestone/shell is rare. This absence of feldspar is interesting; like mica there is not a direct association between feldspar and the sandstones of the islands, and like mica feldspar is abundant in the surrounding geology of the mainland lakeshore (Westerhof et al. 2014; Lehto et al. 2014; see Chapter 1). However while mica-rich mineral inclusions are being added to the Sesse ceramics (or ceramics are being produced and imported from mica rich areas), feldspar is not appearing in the ceramics.

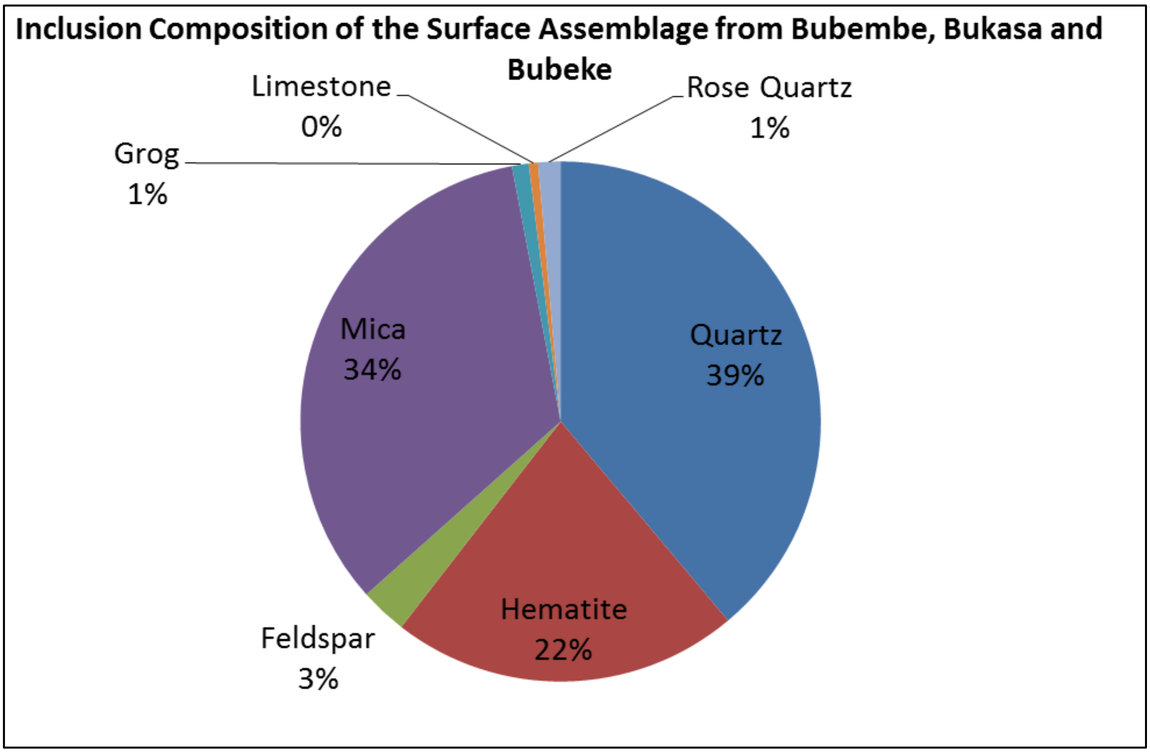


Figure 6. 5: Proportions of different inclusions present in the overall surface assemblage (n = 2334)

The results of Chi Squared testing on the inclusions counts from the survey assemblages indicate an affinity between grog and sites BKS 13 and BKS 20, between quartz and BKS 5, between feldspar and BKS 37, and between hematite and BKS 33. In terms of west to east patterning hematite increases with distance from the mainland (see Figure 6.6 and Figure 6.7), which is supported by a significant P-value of 0.029 for a test on the regression line in Figure 6.6. Rose quartz conversely exhibits a significant decrease with distance from the mainland (see Figure 6.7), supported by a P-value of 0.0047. Grog does not exhibit any distinct association with distance from the mainland; however there are two clusters of sites with higher levels of grog (see Figure 6.8), which appears to match the distribution of fine grained clays throughout the region.

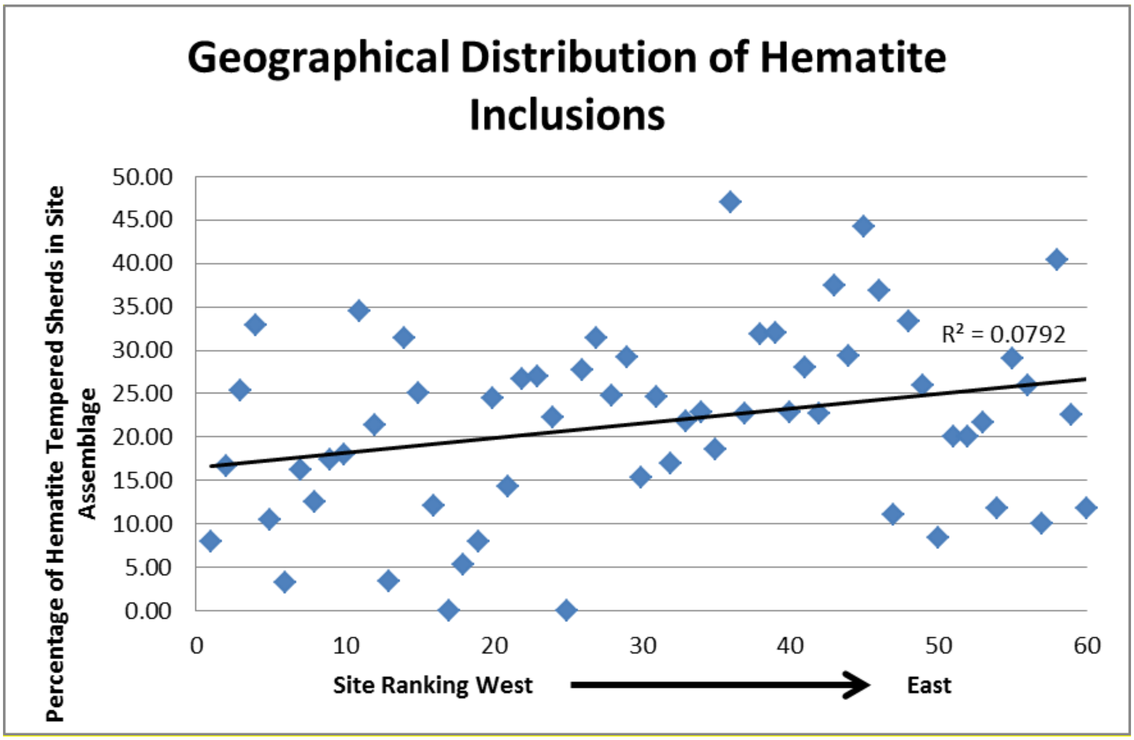


Figure 6. 6: scatter plot of the distribution of hematite inclusions on a west to east basis with regression line (n = 710)

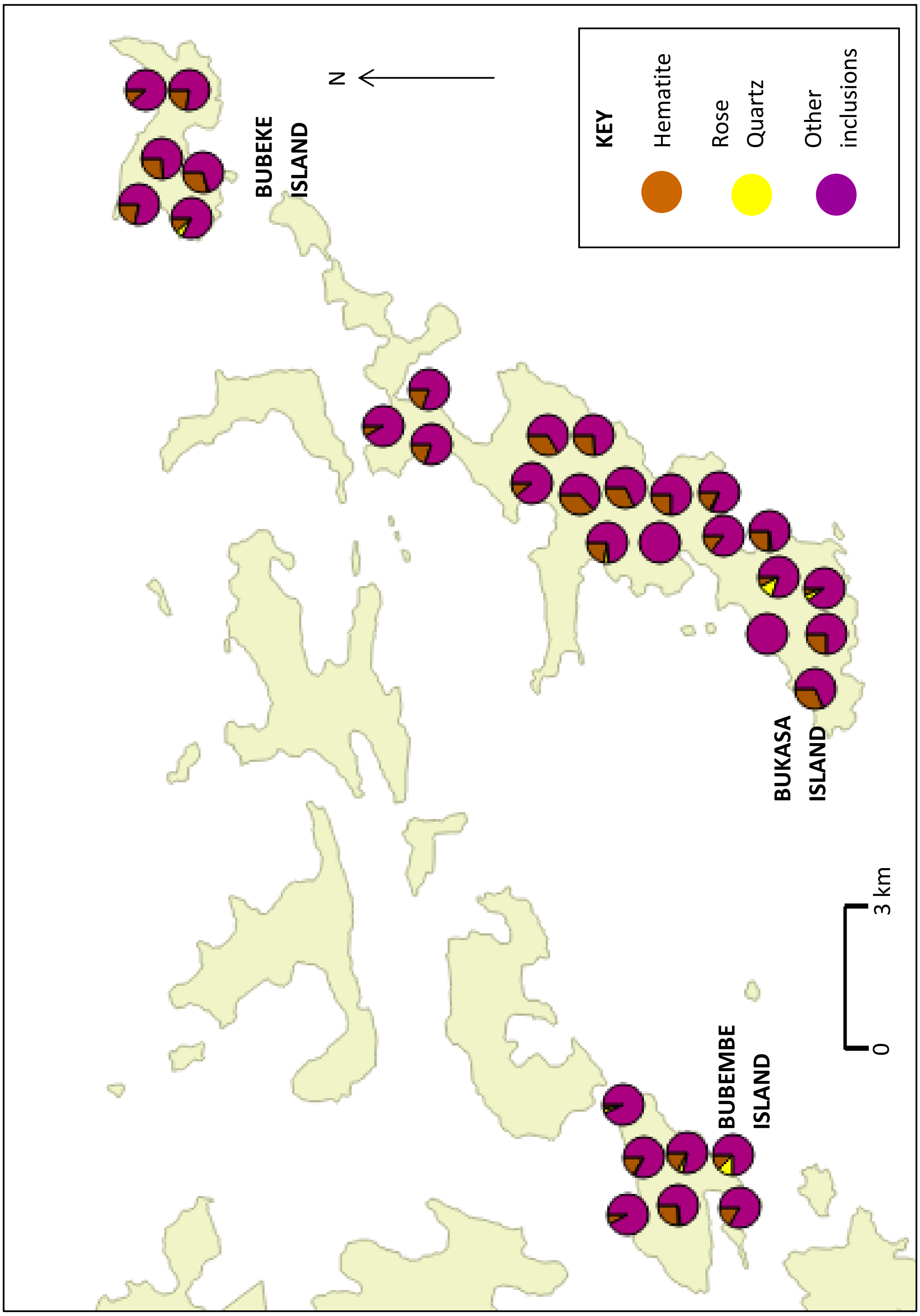


Figure 6. 7: Distribution of hematite and rose quartz inclusions between survey assemblages

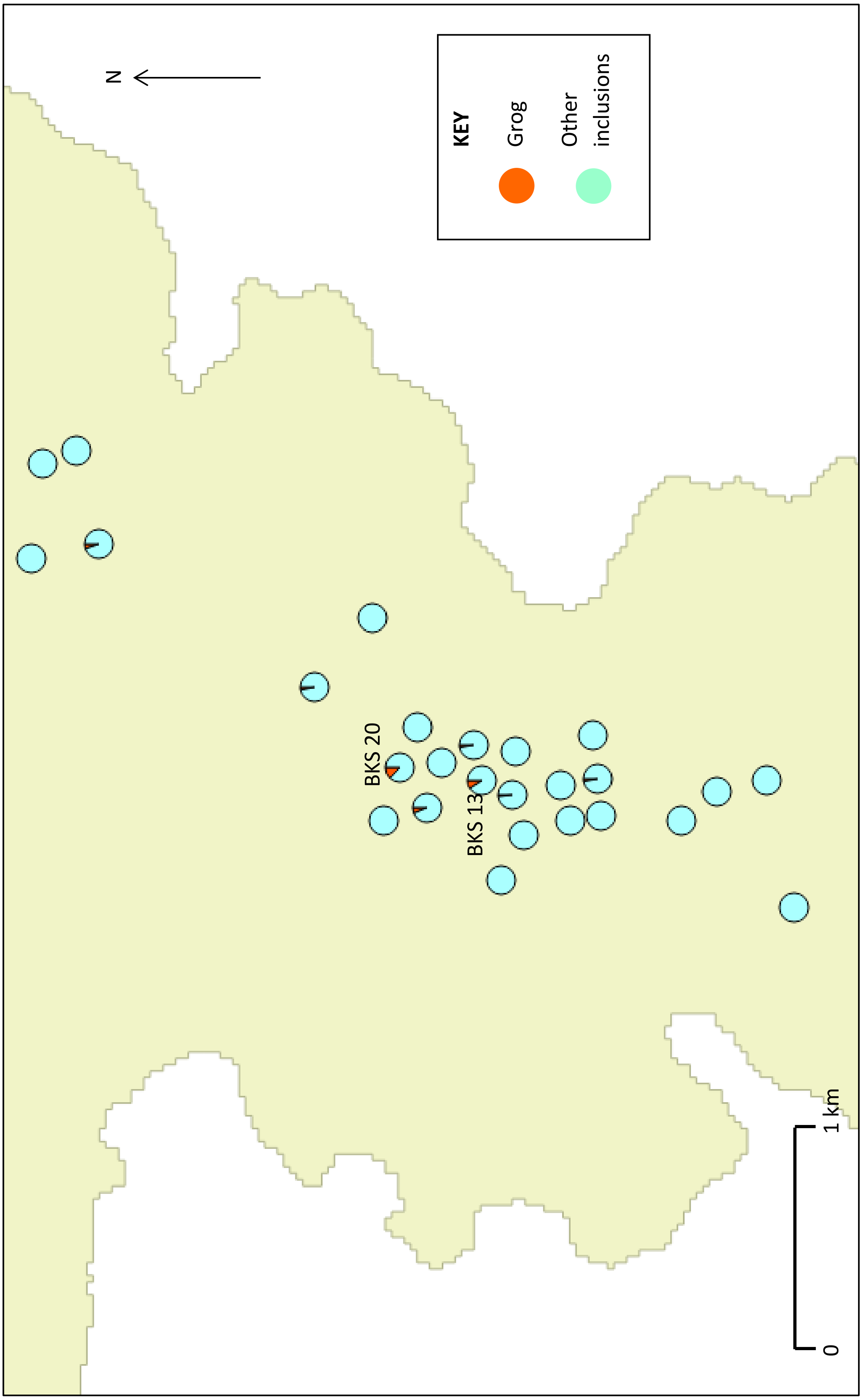


Figure 6. 8: the percentage of grog inclusions in ceramic assemblages from central Bukasa

Upon further analysis, 100% of fine grained clays in the fieldwork assemblages are tempered with grog, and it is likely the addition of grog to fine grained clays is necessary to give the clay structural integrity during the manufacturing process. Raw clay is naturally composed of elongated platelets and without the addition of coarser, more angular grains for the clay platelets to anchor to, they are more likely to shift and cause the vessels to shear (Rice 1987a). Grog is not the only addition which may serve this purpose, and elsewhere in East Africa it is common to add sand or crushed rock to the raw clay (Kohtamaki 2010). The choice to add grog appears to directly correlate with a unique manufacturing tradition associated with central Bukasa, as evident in the attribute patterning at BKS 20, and BKS 13, and this is explored in the discussion in Chapter 8.

6.1.2 Fabric Attributes: 'Magnetism'

Each potsherd was recorded as being 'magnetic', meaning the sherd could be moved or picked up by a magnet, or 'un-magnetic'. This trait initially appeared to be unrelated with the presence of iron rich minerals (e.g. hematite) when the ceramics were examined with a hand lens, as not all hematite containing sherds were magnetically reactive and conversely some sherds without hematite exhibited magnetism. However a thin section analysis of one un-magnetic sherd and nine magnetic sherds, made from a variety of fabrics (with a range of coarseness) and with a variety of inclusions (as identified by hand lens) indicated the source of the magnetism to indeed be inclusions of iron rich minerals (most commonly hematite, though other common iron rich minerals often found in lateritic geologies include goethite and magnetite (Economou-Eliopoulos 2003)).

A large quantity (23.41%) of the survey ceramics were recorded as magnetic. This may be largely explained by the geology of the Sesse archipelago; the geomorphology of the islands is characterised by a rich lateritic gravel (McFarlane 1967; Jackson and Gartlan 1965). In lateritic geologies the leaching of silica leaves behind an acidic soil with a high iron and aluminium content, both of which are magnetic minerals (Kaurichev 1979).

Yet, interestingly, amongst the survey assemblages only ceramics from site BBK 1 have a definitively high proportion of magnetism. A graph of regional patterning indicates a distinct increase in levels of magnetism in an easterly direction away from the mainland, with a test on the regression line producing a significant P-value of 0.0049 (see Figure 6.9). Figure 6.10 displays the proportions of magnetism at each site geographically across the region, and clearly shows a presence of magnetism at most sites, though the gradual increase in relative magnetism in an easterly direction on the map is clear.

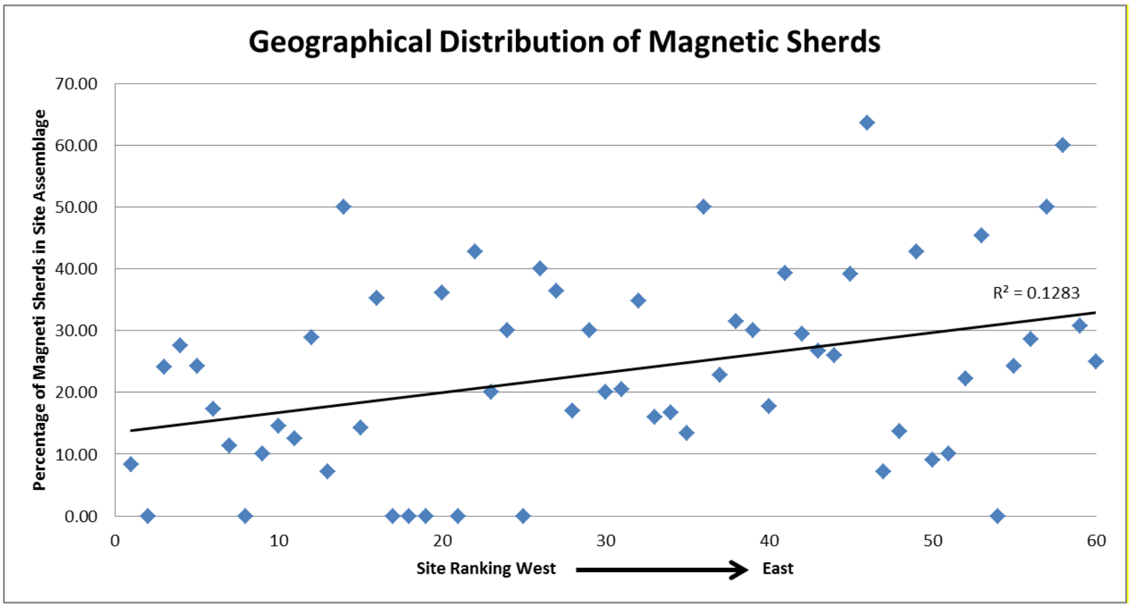


Figure 6. 9: Scatter plot of the percentage of magnetic sherds in each surface assemblage with a regression line indicating an easterly increase in magnetism (n = 411)

In a recent study conducted by the Geological Survey of Finland (Lehto et al. 2014; Westerhof et al. 2014), a map was created to reflect the magnetic intensity of different areas within Uganda, and their relation to the local geologies (note that the areas of high and low magnetism do not directly correspond with geological divisions; see Figure 6.11). The results of this study, indicated on the map in Figure 6.11 indicate that while the majority of the Sesse Islands lie in a region with a high magnetic signature, there is a split towards the west of the archipelago, with a few islands falling into an area with a low magnetic signature. Explanations for different levels of magnetism within the ceramic assemblages is discussed in detail in Chapter 8.

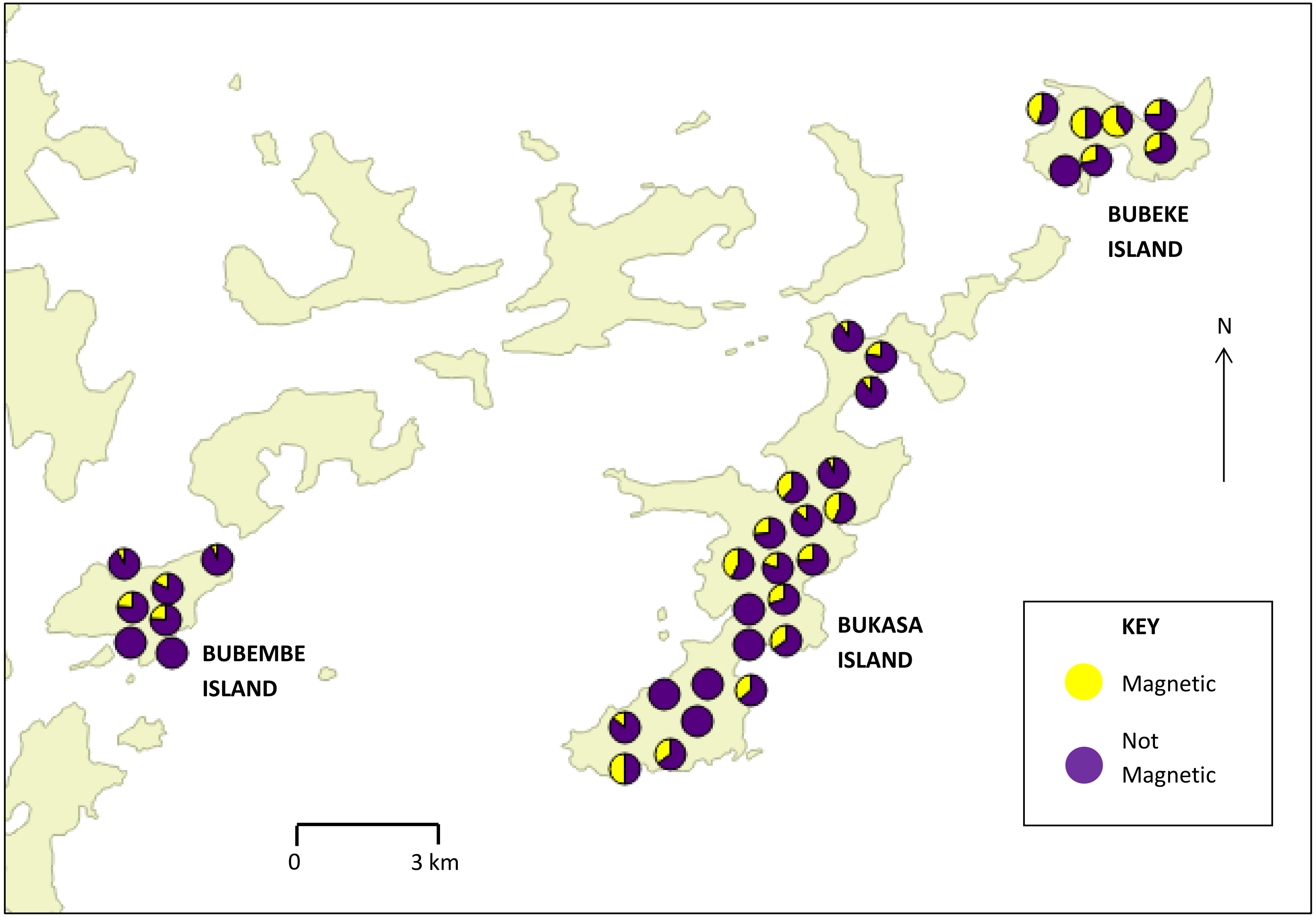


Figure 6. 10: The distribution of magnetic sherds between survey assemblages

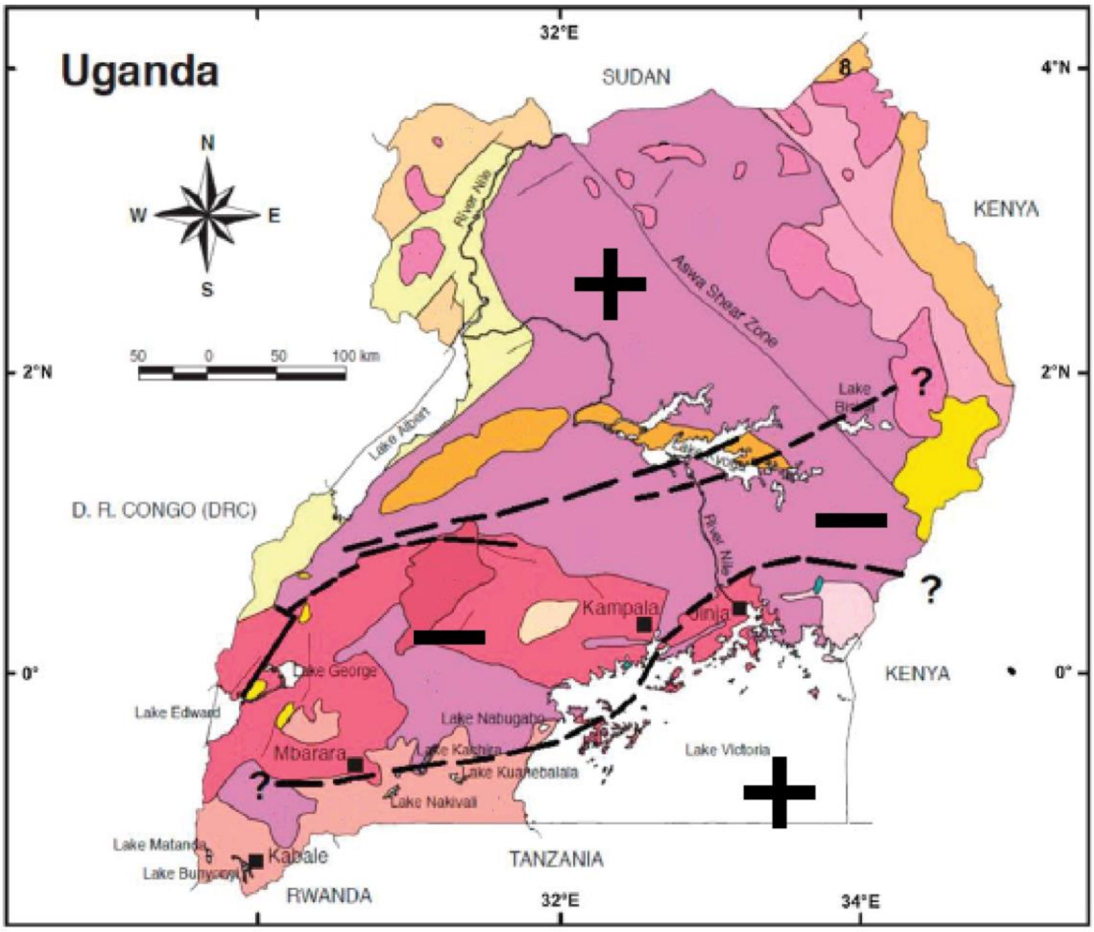


Figure 6. 11: Geological map of Uganda indicating areas to the north and south with a high magnetic signature (marked with +), with a bounded central area exhibiting a low magnetic signature (marked with -)(modified from Westerhof et al. 2014:70, Figure 3.1)

Considering the naturally high magnetic signature of the easterly Sesse Islands (which incorporates Bubembe, Bukasa, and Bubeke in their entirety), and the iron rich and thus magnetic nature of the lateritic island geology, the magnetic sherds may be produced from clays. Under the hypothesis that sites further west are more accessible to the mainland due to proximity, and to the westerly islands which lie in an area with a low magnetic signature, it may be suggested that the introduction of 'foreign' sherds constructed from non-lateritic clays derived from the mainland, or island clays with a low magnetic signature, results in a dilution of the sherd assemblages further west, resulting in higher proportions of magnetic sherds at the isolated sites further east. Mainland assemblages contain a notably lower percentage of magnetic sherds, which supports this theory.

Considering not all hematite sources are magnetic based on the presence of hematite inclusions in non-magnetic sherds in the collection, it appears that some non-magnetic sherds may be constructed from hematite-containing clays derived from the areas of the map with a low magnetic signature. This may have implications for the provenience of ceramics around the Lake Victoria basin.

6.1.3 Surface Décor Attribute Analysis

The same methods of testing were carried out on the remaining attribute fields. Where necessary attributes were amalgamated to create counts high enough for a Chi Squared test to be employed. Fifteen different decorative techniques were recorded on the survey ceramics as defined by the tool implemented in creating the designs. These were: undecorated; KPR (knotted strip roulette); stylus; cord wrapped paddle (CWP); TGR (twisted string roulette); CWR (carved wooden roulette); finger; clay roulette; circular tool; metal bracelet; drill; stick; clay (appliqué); and grass (see Figure 6.12 for photographs of the more common designs). From these KPR decorations were most common, appearing on 35.64% of sherds in the surface collections. Stylus decorations were next most numerous, featuring on 11.83% of ceramics, with all other decorative techniques featuring less than 10% of the time. Although undecorated body sherds were not collected from the surface for analysis, they were counted and discarded at the site of discovery; Just over a quarter of all sherds in the surface collection were undecorated (see Figure 6.12).

Amongst the individual site compositions, BMB 11 and BMB 10 both exhibited a higher than expected frequency of TGR decorations within their assemblages. A combination with KPR decorations (to adjust numbers for Chi Squared testing) shows that TGR and KPR decorations together occur in significantly elevated ratios at both sites. Considering the relative ubiquity of KPR throughout all sites it can be implied that TGR decorations are especially associated with these sites.

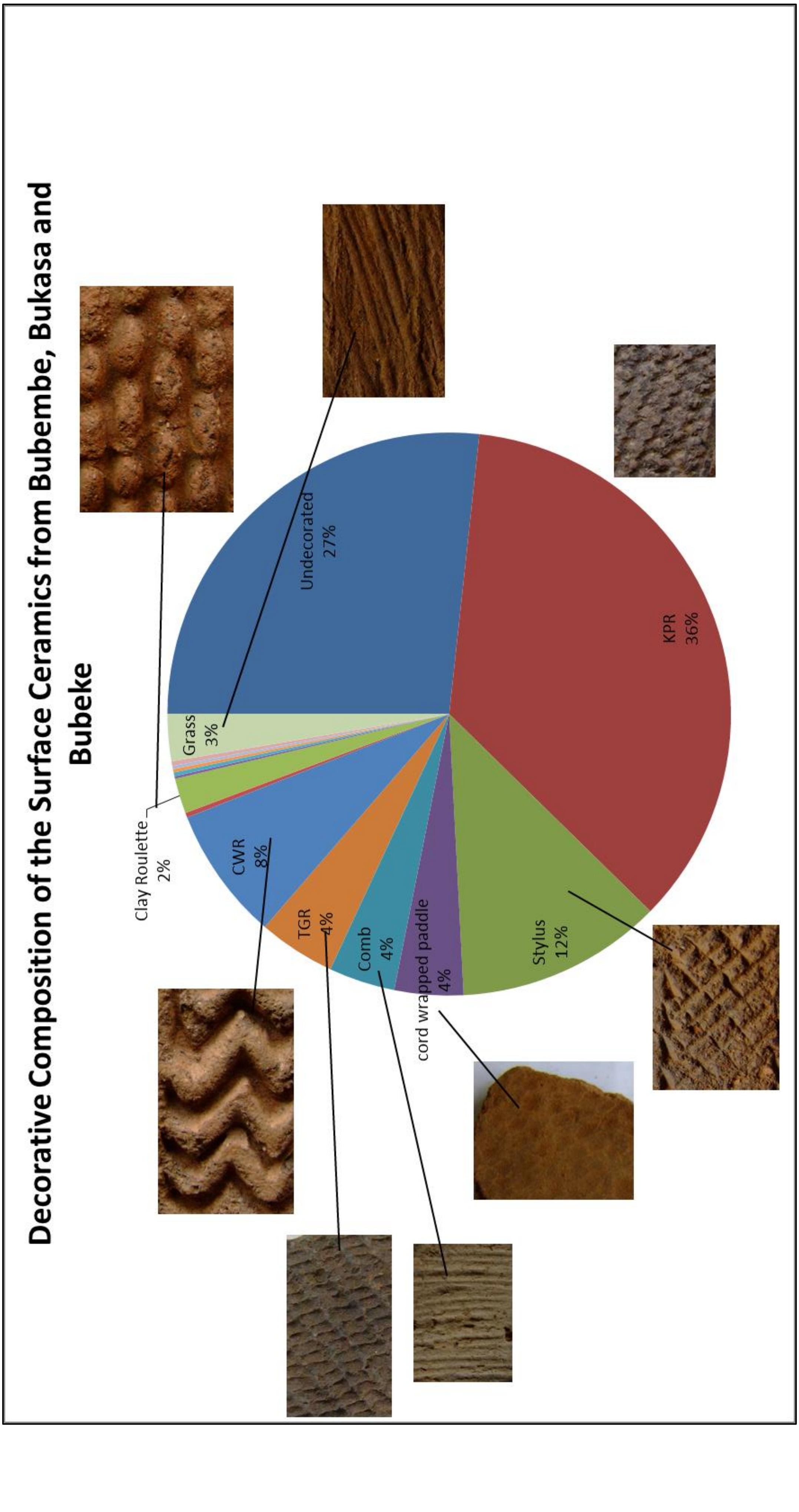


Figure 6. 12: Common decorative techniques and their contribution to the surface ceramic assemblage (n =1684)

The scatter graph in Figure 6.13 and the map in Figure 6.14 illustrate a distinct west to east patterning in the distribution of TGR decorations with assemblages furthest east containing no TGR decorated sherds. A significance test on the angle of the regression line gives a P-Value of 0.000006, which strongly emphasises the notion that TGR decoration is associated with the westernmost sites and may be influenced by proximity to the mainland. BBK 7 is the only other survey site with any unique decorative associations. The assemblage here is dominated by cord-wrapped paddle and grass decorations, both of which tend to co-occur on opposite sides of the same potsherd. There is evidence for some increase in an easterly direction, though this pattern cannot be substantiated by a regression test.

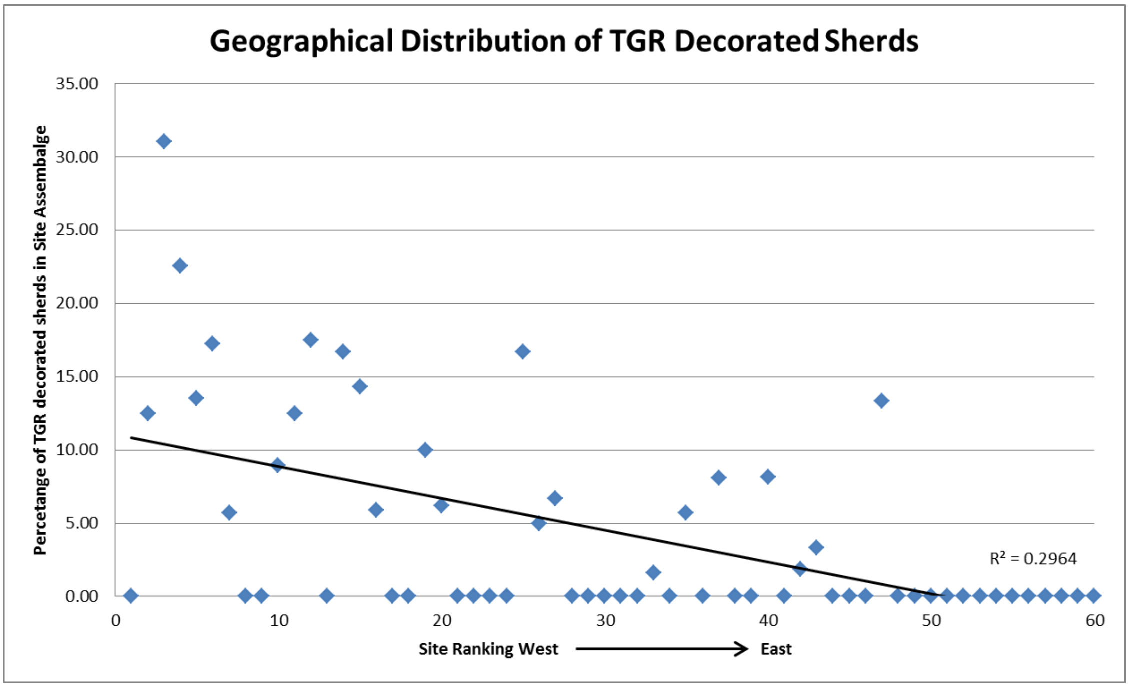


Figure 6. 13: West to east patterning in the distribution of TGR decoration sherds between Bubembe, Bukasa and Bubeke survey sites

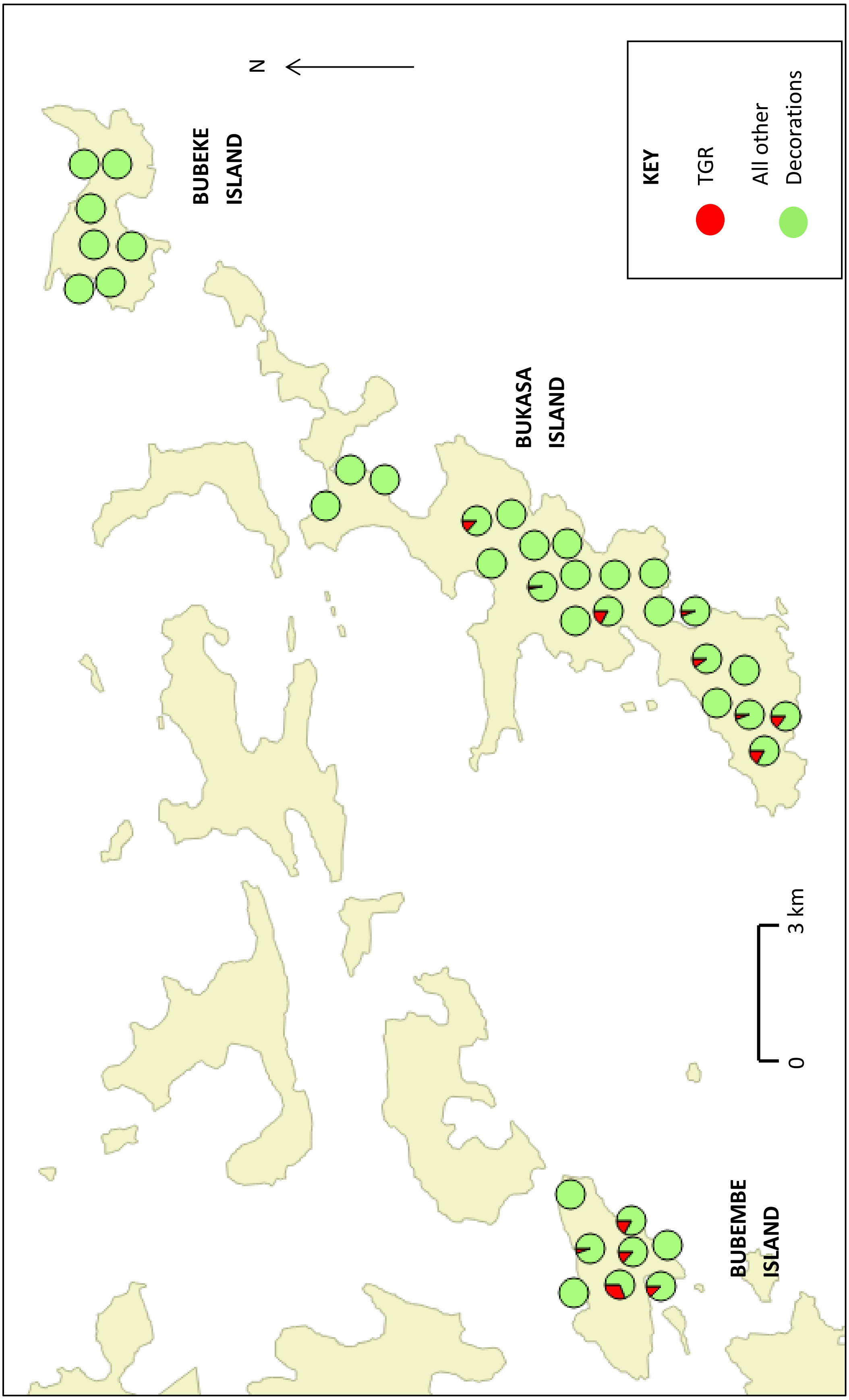


Figure 6. 14: Spatial patterning of TGR decoration within the study area

Explanation for the higher proportion of TGR sherds towards the west of the archipelago and lack thereof in the more isolated sites towards the east may again be explained by proximity to the mainland and ease of access for trade. A later comparison between the fieldwork sites and the comparative sites from Bugala Island and the surrounding lakeshore indicate that TGR decorations are specifically associated with certain mainland lakeshore sites, and appear in higher numbers on Bugala than on the fieldwork islands further east. Specifically, on Bugala Island comb decorations feature most prominently at Malanga Lweru, which is recognised as a trade locale in earlier research (Ashley 2005). Evidence presented later in this chapter on the fieldwork assemblages links the appearance of comb to the excavated levels of BKS 20, suggesting this site may be involved in a wider trade network incorporating Malanga Lweru and the mainland coastline. All evidence for this supposed trade route is discussed in Chapter 8.

6.1.4. Surface Vessel Form Attribute Analysis

Five different vessel forms were recorded amongst the fieldwork survey assemblages: ‘jar’; ‘bowl’; ‘open-collared bowl’; and ‘tobacco pipe’ (see illustrations on Figure 6.15; note that tobacco pipe is not depicted here due to its rare occurrence, but is depicted in the Appendix A1). Note that vessel forms are identified from rims alone due to the absence of bases and complete vessels (see Appendix A1 for explanation of how to determine vessel form from rim). Bowls are by far the most common vessel form and this is likely due to their versatility of form. Jars are slightly less common due to a more restricted range of functionality. The remaining three vessel forms are generally less common (see Figure 6.15). However due to low rim counts no relationships could be drawn between individual sites and specific vessel forms based on surface assemblages alone.

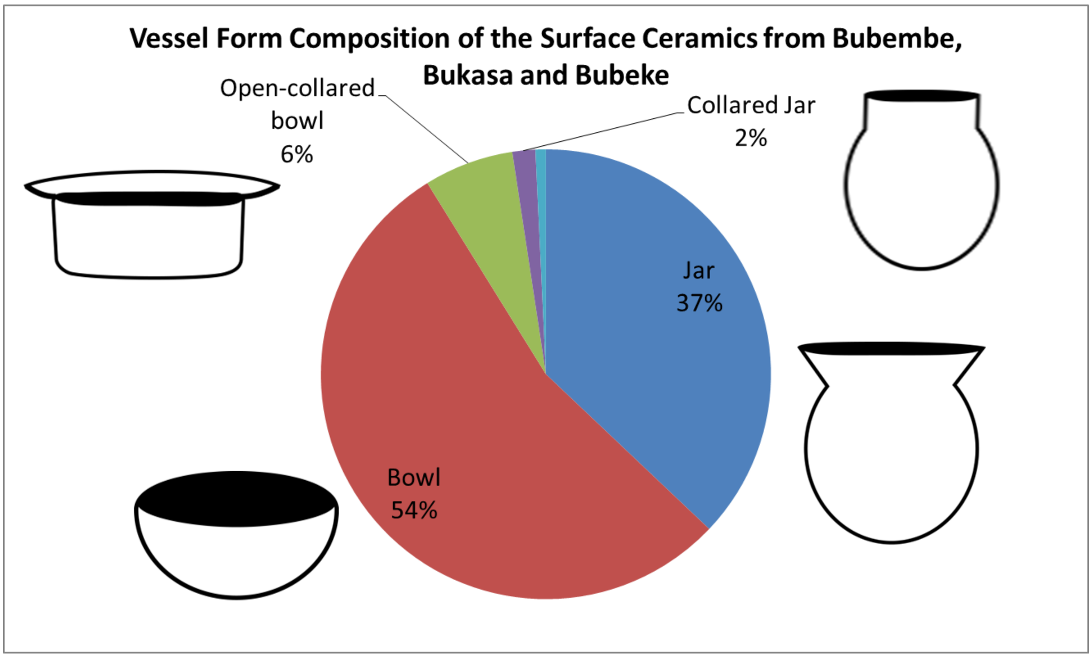


Figure 6. 15: Vessel forms present in the surface assemblages and their contribution to the regional rim sherd total (n = 575) (NB. the light blue wedge between 'jar' and 'collared jar' represented the percentage of tobacco pipes)

On a wider scale the amalgamated ceramics from all Bubeke sites contains a significantly higher proportion of open-collared bowls than found on Bubembe and Bukasa, suggesting some increase in open-collared bowls in an easterly direction (see Appendix A1 for guide on how to identify vessel forms). Later analysis indicates that open-collared bowls tend to be decorated with cord-wrapped paddle decorations on their exterior and dragged grass striations on the interior, and all three attributes maintain a significant association with the assemblage from BBK 7 on a regional scale incorporating ceramics from outside the fieldwork area, whilst two of the three attributes – CWP decoration and open-collared bowl forms – associate with Namusenyu on the northern mainland coastline. Further investigation suggests both the CWP decoration and the open-collared bowl vessel form are relatively young compared to other vessel forms and decorative techniques, due to their exclusive presence in surface assemblages. Therefore a direct, relatively young trade route is hypothesised between Bubeke and the Namusenyu, based on the ceramic evidence. This is supported by local ethno-histories detailing direct interaction between the two locations, as discussed in chapter 8.

6.1.5 Surface Rim Form Attribute Analysis

Amongst the surface ceramics there are three types of rim: ‘everted rims’, which are characterised by their outward inflection or bending at one point; ‘thickened rims’, which are un-inflexed but thickened by the addition of clay; and ‘simple rims’, which are un-inflexed and un-thickened. Thirteen different everted rim forms, ten thickened rim forms and three simple rim forms were identified within the surface collections (see Appendix A2 for illustrations of all forms). Everted rims and thickened rims occurred equally frequently, representing 44.27% and 45.40% of the survey assemblage. Simple rims only contributed 7% of all rims recorded during survey. Figure 6.16 indicates the individual rim form composition of the overall assemblage, with illustrations of the most common rims indicated alongside the pie chart. ThGr3 closed bowl rims were most numerous, followed by flared EvGr4 jar rims. EvGr2 and EvGr3 flared rims both occur fairly frequently with all other rims occurring less than 10% of the time. As mentioned in the vessel form analysis, rim sherd counts are typically too low for individual survey site associations to be analysed statistically.

The only assemblage with any definitive patterning is from BBK 7, with a high proportion of open and flared EvGr1 rims. In general EvGr1 rims have an easterly distribution across the study region indicating an increase in number with distance from the mainland (see Figure 6.18). This is supported by an R^2 value of 0.1242 for the regression line, and a P-value of 0.0057 for a statistical test of significance on the line for a the scatter plot of the proportions of EvGr1 rims within each assemblage, and correlates with the heightened number of open-collared bowls on Bubeke, as all open-collared bowls are adorned with EvGr1 rim profiles. ThGr6 closed bowl rims (Figure 6.17) also exhibit a distinct west to east patterning with higher numbers in the east (see Figure 6.18). This too is supported by an R^2 value of 0.086 and a regression analysis resulting in a P value of 0.0229. However due to low rim form counts at the most easterly sites on Bubeke Island, and the complete absence of ThGr6 rims at the westerly sites, low sherd counts may be skewing the percentage data to imply a pattern exists based on a negligible number of sherds. Later excavation analysis does not support this distributional patterning in ThGr6 rims.

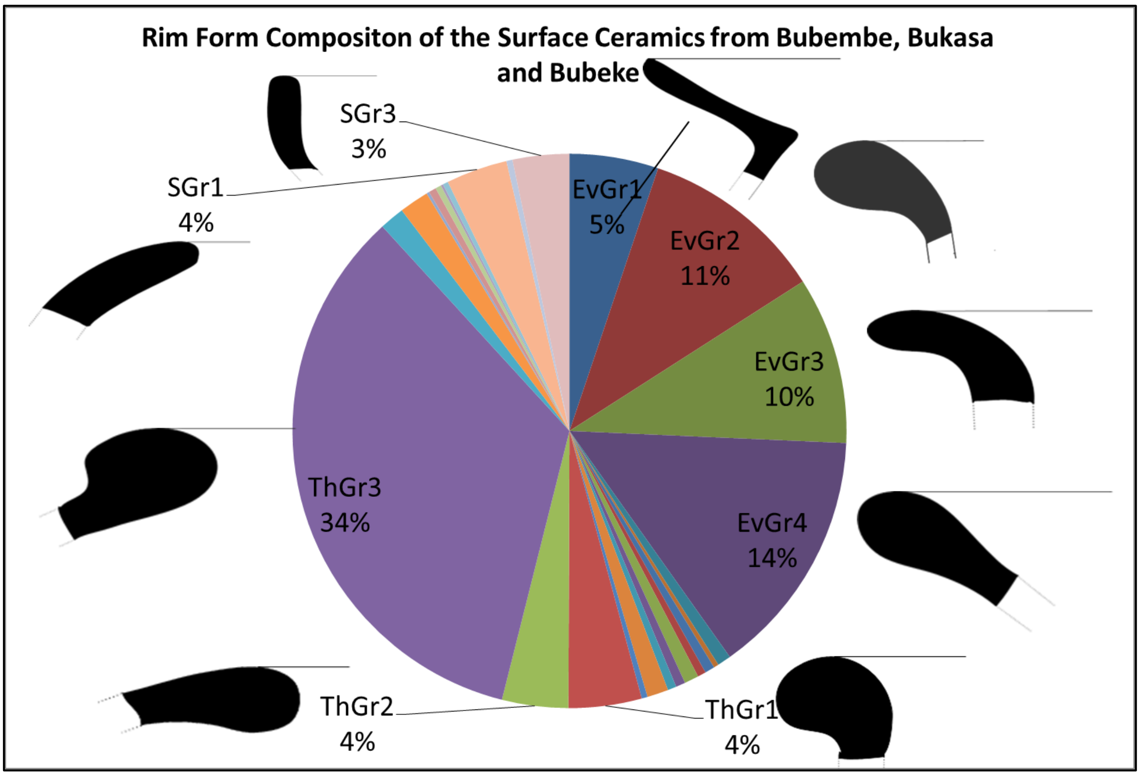


Figure 6. 16: Major rim forms present in the surface assemblages and their contribution to the survey rim sherd total (n = 573)

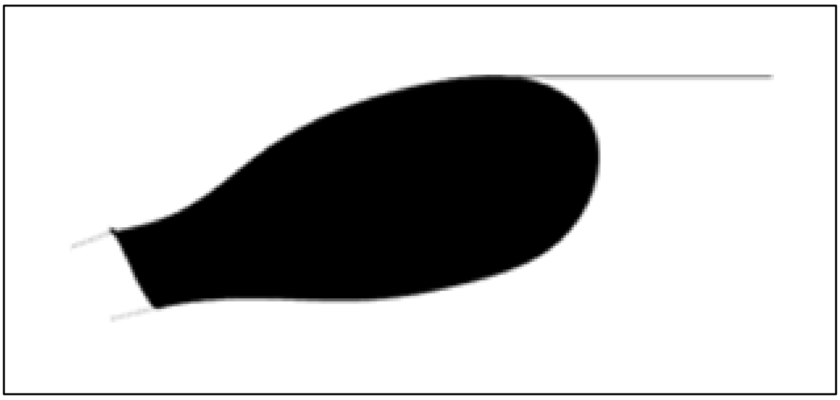


Figure 6. 17: The ThGr6 rim section

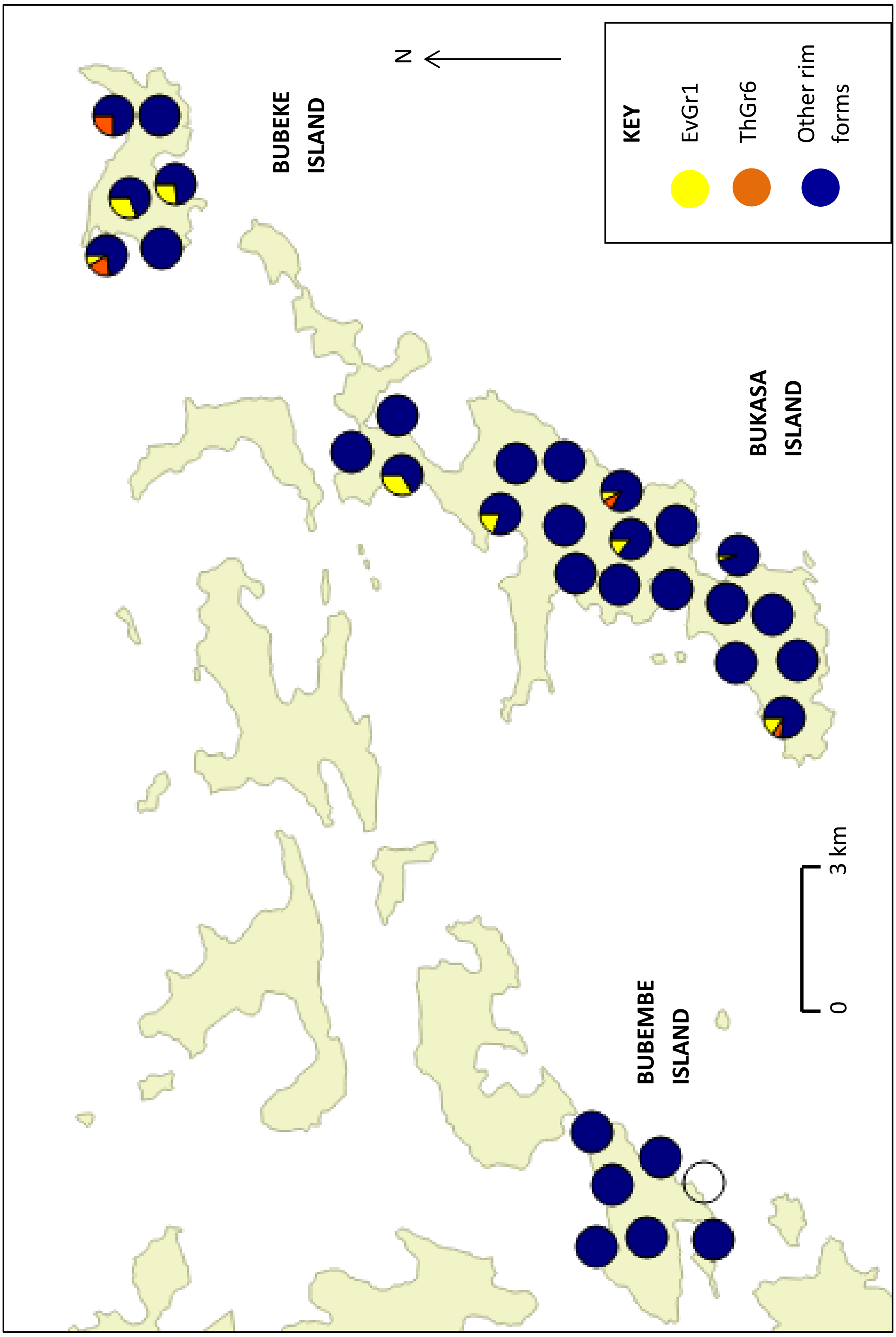


Figure 6. 18: Geographical patterning of EvGr1 and ThGr6 rims within the study region

6.1.6 Surface Rim Diameter and Rim Thickness Attribute Analysis

Both rim diameter categories and rim thickness categories were devised from cumulative frequency charts of all rim diameters and all rim thickness measurements recorded in this analysis (see Chapter 3). Therefore an analysis of the surface distribution of rim diameters and rim thicknesses would simply reiterate these distinctions in recording categories as they are derived from the natural groupings within the rim sherd data. The bar charts in Figures 6.19 and 6.20 provide a summary of the proportions of each rim diameter and rim thickness group present in the survey material; generally there is a prevalence of medium to large sized RD4 to RD7 rim diameters in the islands, and whereas rim thickness measurements are more spread across the range, with a slightly higher proportion of very thin RT1 rims, and thick RT5 rims. An analysis of the surface collections from the individual three islands indicates that the distribution of rim diameters and rim thicknesses does not diverge from this pattern.

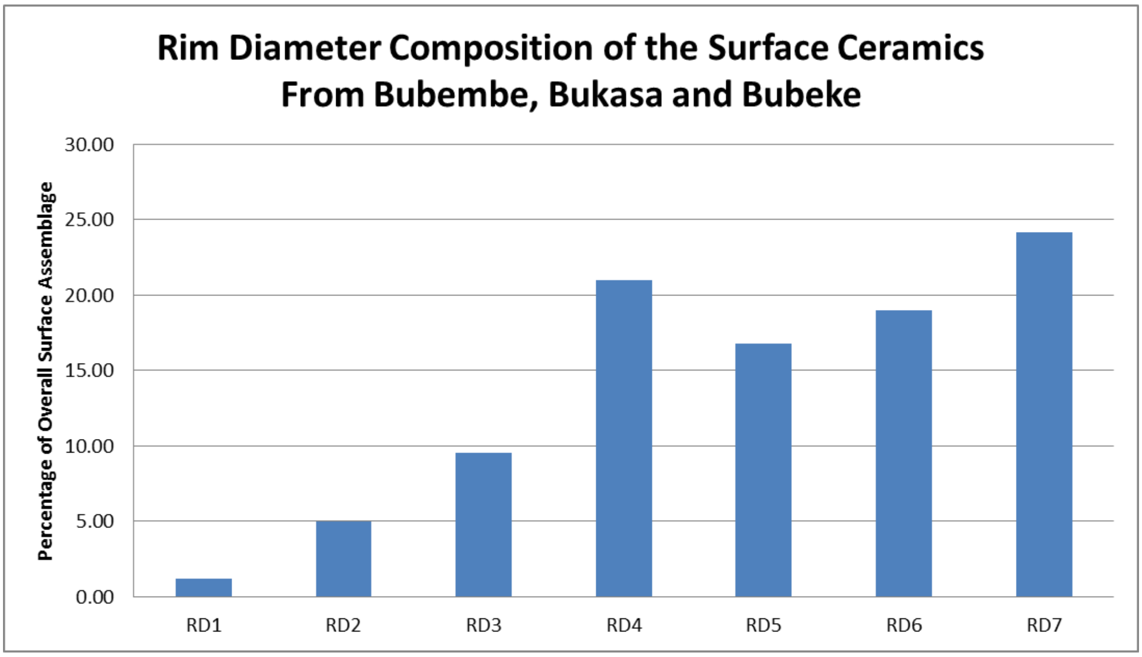


Figure 6. 19: Proportions of each rim diameter category within the surface assemblage (n = 572)

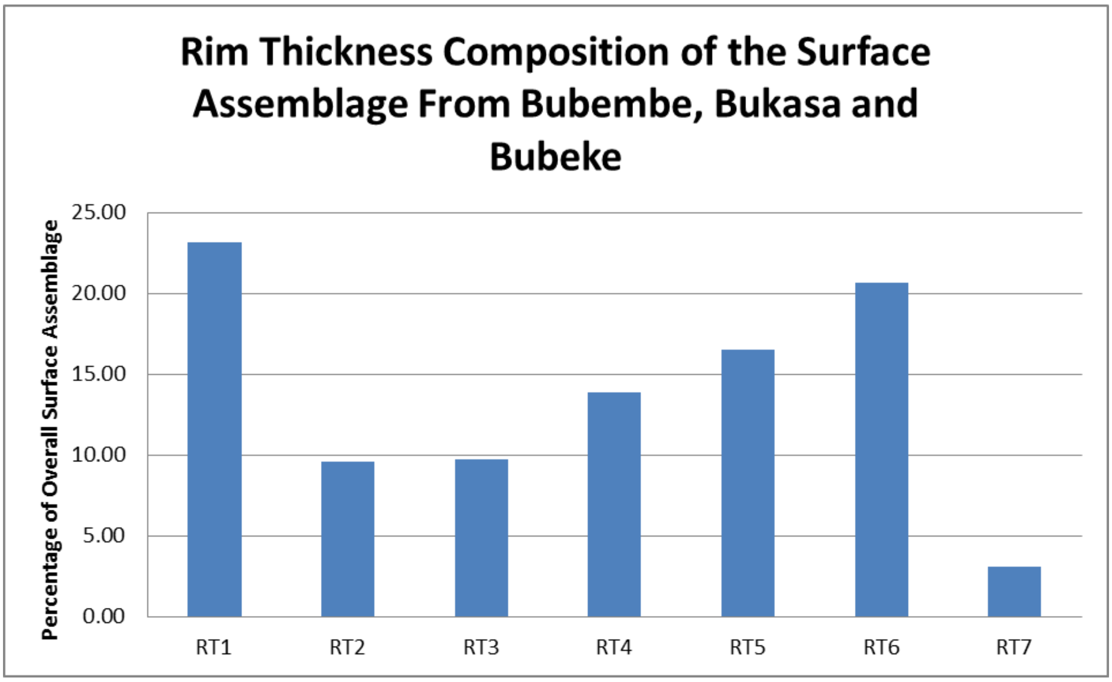


Figure 6. 20: Proportions of each rim thickness category within the surface assemblage (n = 590)

6.1.7 A Principal Components Analysis of the Surface Survey Ceramic Data

The Selection of Attributes for a Principal Components Analysis of the Sesse Island Surface Assemblages

Initially within the database of survey assemblages there was a wide range of attributes which needed to be separated for a PCA; therefore a preliminary PCA was first be conducted on the 'fabric attributes' (fabric coarseness, inclusions/temper, and magnetism), 'decorative techniques', and 'rim sherd attributes' (vessel form, rim form, rim diameter, and rim thickness) as separate groups to highlight initial patterns, though without plotting the groupings on scatter graphs. From this, any component from each of the three groups which contributed more than 15% of the variance between sites across the survey region was be selected for further analysis, and attributes with high positive and negative loadings for each component were involved in the full PCA with results plotted on scatter graphs to reveal which ceramic attributes are most responsible for patterns within the Sesse Island survey assemblages.

The initial PCA of all fabric attributes incorporated percentages of coarse grained clays, medium grained clays, fine grained clays, magnetism, quartz inclusions, hematite inclusions, mica inclusions, feldspar inclusions, rose quartz inclusions, limestone/shell inclusions, and grog tempers. From the resultant correlation matrix any attributes with a positive correlation above .5 or a negative correlation below -.5 were noted (see Table 6.3). During the Chi Squared analysis both grog inclusions and fine-grained clays tended to co-occur in the same assemblages, and an observation was made that all fine grained clays encountered during the analysis contained grog inclusions. With a positive correlation of .936, this association is supported in the PCA. During a thin-section analysis associations were also made between iron-rich hematite inclusions and magnetism, a trait which is also supported in this PCA with a positive correlation of .642. However, as well as supporting patterns defined during the Chi Squared analysis, this PCA also highlights correlations between attributes which have previously gone unnoticed. There is a strong negative correlation of -.971 between coarse and medium grained clays, suggesting coarse and medium grained ceramics do not co-occur in the same assemblages very often, and their presence at different sites throughout the region may be indicative of selective patterning in ceramic attributes. There is also a less strongly defined negative correlation of -.527 between quartz and hematite, which again suggests the two inclusions are less frequently encountered together at a site.

	Coarse	Medium	Fine	Quartz	Hematite	Feldspar	Mica	Grog	Limestone/ shell	Rose Quartz	Magnetic
Coarse	1.000	-.971	-.181	-.008	-.154	.063	.142	-.224	.182	.038	-.035
Medium	-.971	1.000	-.061	.018	.165	-.050	-.122	-.001	-.156	-.028	.051
Fine	-.181	-.061	1.000	-.039	-.035	-.059	-.091	.936	-.116	-.044	-.061
Quartz	-.008	.018	-.039	1.000	-.527	-.079	-.189	-.071	.021	.201	-.462
Hematite	-.154	.165	-.035	-.527	1.000	-.032	-.495	-.007	-.389	-.328	.642
Feldspar	.063	-.050	-.059	-.079	-.032	1.000	-.468	-.124	.058	-.134	.051
Mica	.142	-.122	-.091	-.189	-.495	-.468	1.000	-.086	.093	-.052	-.217
Grog	-.224	-.001	.936	-.071	-.007	-.124	-.086	1.000	-.104	-.012	-.004
Limestone	.182	-.156	-.116	.021	-.389	.058	.093	-.104	1.000	.290	-.329
Rose Quartz	.038	-.028	-.044	.201	-.328	-.134	-.052	-.012	.290	1.000	-.322
Magnetic	-.035	.051	-.061	-.462	.642	.051	-.217	-.004	-.329	-.322	1.000

Table 6. 3: Correlation matrix for fabric attributes from Bubembe, Bukasa and Bubeke surface survey assemblages, highlighting the co-occurrence of attributes within assemblages

Based upon these patterns of correlation between fabric attributes, the emergent Principal Components were tabulated with their contribution to explaining variance across the survey assemblages (see Table 6.4). PC1 was responsible for 24.624% of the total variance, PC2 was responsible for 19.149% of the total variance, and so on. A table for the Eigenvector loadings for each of the major Principal Components was constructed (i.e. Principal Components with an Eigenvalue above 1; see Table 6.5) to identify which of the ceramic attributes were responsible for creating the variance between the survey ceramic assemblages expressed by each principal component.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.709	24.624	24.624	2.709	24.624	24.624	2.030	18.453	18.453
2	2.106	19.149	43.774	2.106	19.149	43.774	1.993	18.116	36.568
3	1.798	16.344	60.117	1.798	16.344	60.117	1.874	17.037	53.605
4	1.459	13.262	73.380	1.459	13.262	73.380	1.608	14.621	68.226
5	1.000	9.095	82.474	1.000	9.095	82.474	1.567	14.249	82.474
6	.915	8.321	90.796						
7	.551	5.009	95.805						
8	.403	3.663	99.468						
9	.058	.532	100.000						
10	3.633E-016	3.303E-015	100.000						
11	-1.274E-016	-1.158E-015	100.000						

Table 6. 4: Explanation of variance for fabric principal components from Bubembe, Bukasa and Bubeke surface assemblages

	Component				
	1	2	3	4	5
Coarse	.978	-.163			
Medium	-.991				
Fine		.983			
Quartz			-.934		.135
Hematite	-.166		.682	-.483	.289
Feldspar	.114			.130	.779
Mica	.148			.151	-.912
Grog		.980			
Limestone	.138			.866	
Rose Quartz			-.253	.608	
Magnetic			.684	-.453	.158

Table 6. 5: Eigenvector loadings for each Principal Component from the Fabric PCA

The purpose of this initial PCA is to determine the attributes associated with Principal Components which are responsible for more than 15% of the variance within the fabric attributes category, to define which attributes are most explanatory of variance within the Sesse Island assemblages and should be included in a full PCA of all the survey data. From the fabric attributes, only PC1, PC2, and PC3 contributed more than 15% of the variance. For PC1, coarse grained fabrics produce a high positive loading and medium grained fabrics contribute a high negative loading (see Table 6.5). For PC2, fine grained fabrics produce a high positive loading and grog tempers produce an equally high positive loading. Finally for PC3 magnetism and hematite both produce a high positive loading, with Quartz giving a high negative loading. Therefore in the subsequent PCA analysis coarse, medium, and fine grained percentages, grog temper percentages, hematite and quartz inclusion percentages, and percentages of magnetic sherds will be included from the fabric attributes.

For the preliminary PCA of decorative techniques, those featuring less than 1% of the time in the entire survey assemblage were removed from the analysis. Therefore, a PCA analysis was carried out on the following decorative techniques found within the surface assemblages: undecorated, KPR, stylus, cord-wrapped paddle, Comb, TGR, CWR, and grass. Again a resultant correlation matrix for these decorative techniques was drawn (see Appendix A4). The only resultant association was between cord-wrapped paddle and grass decorations, with a positive correlation of .846. This supports observations made during the Chi Squared analysis. The lack of correlation, neither negative nor positive, between other decorative techniques suggests the percentage presence of different decorative techniques in an assemblage is unsuitable for use as a typological indicator in the Sesse Islands, as the appearance or disappearance of different decorative techniques do not correlate with one another in surface assemblages. A resulting table for an explanation of variance within the emergent Principal Components (see Appendix A4) indicates that PC1 is responsible for 24.828% of the variance in the surface assemblages, PC2 is responsible for 22.988%, and PC3 is responsible for 16.882% of the variance with all other Components falling below the 15% threshold. There is a high positive eigenvector loading of CWP (.958) and grass (.956) for PC1 with no high negative loading, a high positive loading of CWR

(.733) and stylus (.667) for PC2, with a high negative loading for KPR (-.777), and a high positive loading of TGR (.667) and high negative loading of Undecorated (-.844) for PC3. Therefore of all the decorative techniques CWP, grass, CWR, stylus, KPR, TGR, and an absence of decoration are most likely to produce variance in these ceramic assemblages and will be included in the full PCA for the surface survey assemblages from Bubembe, Bukasa and Bubeke.

Finally a preliminary PCA was conducted on rim sherd attributes, with any rim attribute contributing less than 1% to the overall surface survey assemblage removed from the analysis. This excluded: pipe, EvGr5-8, EvGr11, 12, 13, ThGr4, ThGr7-13, and SGr2. A PCA was conducted on the remaining variables. A high number of correlations were evident in the rim sherd attributes (see Appendix A4 for tables). A strong positive correlation emerges between open-collared bowls and EvGr1 rim forms (.920), and between collared jars and the EvGr9 rim from (.642), which has been highlighted in the previous Chi Squared analysis. Jars have a negative correlation with bowls (-.722), suggesting the two tend not to co-occur within assemblages. This may be the result of different functions of the two vessel forms, or different breakage and discard patterns. Jars have a positive correlation with EvGr3 (.505) and EvGr4 (.636) rim forms, suggesting these are the two most prevalent jar rim forms within the islands, and also with the RT2 thickness groupings (.625), implying the majority of jars are not heavily thickened. In relation to this patterning, EvGr4 rims have a specific positive correlation with the RT2 group (.516). Bowls alternately display a positive correlation with ThGr3 rims (.632), implying this to be the most popular bowl rim form within the study area. ThGr3 rims conversely correlate with the large RD7 diameter group (.585) and RT6 thickness group (.523), indicating that bowls adorned with the ThGr3 rim tend to be very wide in diameter and heavily thickened. SGr1 rims correlate with a small RD2 diameter (.722).

As with the fabric and decorative attribute groups, the preliminary PCA for rim sherd attributes resulted in a range of Principal Components. However PC1 was only responsible for 14.633% of the variance across the assemblage, with all other Principal Components falling below this percentage, indicating that the rim sherd attributes are not as strongly indicative of variance between the surface assemblages as the fabric and the decorative attributes. Therefore none of the rim attributes can be considered within the full PCA for the islands as all PCs fall below the 15% threshold.

A Principal Components Analysis of the Sesse Island Surface Survey Assemblages

Based on the preliminary PCA of the three different attribute groupings detailed above, the following attributes were included in this PCA based upon their high positive and negative loadings with PCs contributing over 15% of the variance in each case, which suggests they may be useful in highlighting patterns within the surface assemblages: coarse, medium, and fine grained fabrics, grog tempers, hematite and quartz inclusions, magnetism, CWP, grass, KPR, CWR, TGR, and stylus decorations, and the percentage of undecorated sherds. The correlation matrix for these attributes has not been reproduced here, as no correlations emerge aside from the correlations previously identified in the three categories above. Of the emergent Principal Components, five carry an Eigenvalue above 1 (see Appendix A4 for tables of components and their Eigenvector loadings).

At 19.416% Principal Component 1 is most responsible for the patterning of variance between sites, with a high positive loading of hematite (.812) and magnetism (.857), suggesting these two attributes play the greatest role in the differences between assemblages in the survey area. PC2 contributes 17.197% of the variance, and is represented by a high positive loading of medium grained fabrics (.964), and a high negative loading of coarse grained fabrics (-.957). PC3 contributes 14.668% of the variance, created by a high positive loading of fine grained fabrics (.982) and grog (.972). PC4 is responsible for 13.462% of the variance, represented by high positive loadings of CWP (.950) and grass (.946) decorations. Finally PC5 contributes 11.252% of the variance, with high positive loadings for KPR (.829), TGR (.597), and a high negative loading for CWR (-.626) and absence of decoration (-.565).

From this information we can ascertain that the attributes most responsible for patterning within the Sesse Island ceramic assemblages are (in order of importance) magnetism, hematite inclusions, medium grained fabrics, fine grained fabrics, grog, CWP, grass, KPR and TGR decorations. This may reflect localised ceramic manufacturing traditions, or networks of trade and interaction which influence access to/creation of ceramics. By plotting the Principal Components against one another on a scatter graph, it may be possible to determine clusters of surface assemblages with shared or unique attribute patterning, which may reflect spatial differences across the archipelago. Generally plotting all sites together on a scatter graph makes it difficult to identify cluster patterns due to the sheer number of points, though outliers are obvious. For example Figure 6.21 plots **PC1 Vs PC2,** and although BKS 3 emerges with a uniquely high PC2 but very low PC1 reading, indicating a high proportion of medium grained sherds and low proportion of coarse grained sherds in the assemblage, and a high number of sherds with quartz inclusions (as quartz has a high negative loading on PC1), though a low number of hematite inclusions or magnetism, it is difficult to examine spatial patterning of attributes between the three islands.

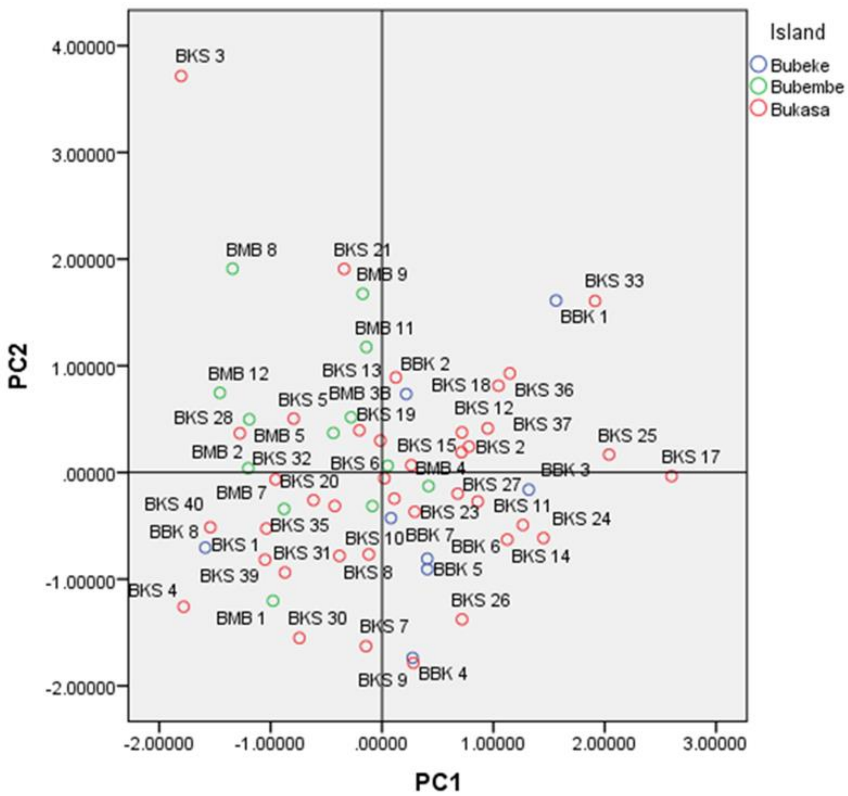


Figure 6. 21: Scatter plot of PC1 (with a positive loading of magnetism and hematite and a negative loading of quartz) Vs PC2 (with a positive loading of medium grained sherds and a negative loading of coarse grained sherds) for all survey assemblages from Bubembe, Bukasa and Bubeke

However, if the islands are plotted independently, as in Figures 6.22 – 6.24. We can now see that the Bubembe sites cluster within the upper left quadrant of the plot, indicating these assemblages tend to contain a lower proportion of magnetism and hematite inclusions, and a higher proportion of medium grained sherds with a reduced presence of coarse grained sherds, with the exception of site BMB 1 which has a greater proportion of coarse grained sherds than other Bubembe sites. Moving eastwards through the archipelago and further from the mainland, the Bukasa sites cluster around the zero point, indicating PC1 and PC2 do not create any major patterns for these assemblages. However, aside from the outliers BKS 3 and BKS 21, there are fewer Bukasa sites in the upper left quadrant (where the Bubembe sites accumulate) than elsewhere on the graph. If we shift our attention to Bubeke Island we can see a very different pattern to Bubembe Island; not a single Bubeke site lies in the upper left quadrant, with the majority producing an opposite pattern of high magnetism and hematite, and more coarse grained than medium grained sherds. This supports the attribute patterning identified by the earlier Chi Squared and regression analyses, which indicated that percentages of magnetism and hematite inclusions increase in an easterly direction through the archipelago, and medium grained sherds, which associate with mainland sites, feature more greatly on Bubembe Island closer to the mainland.

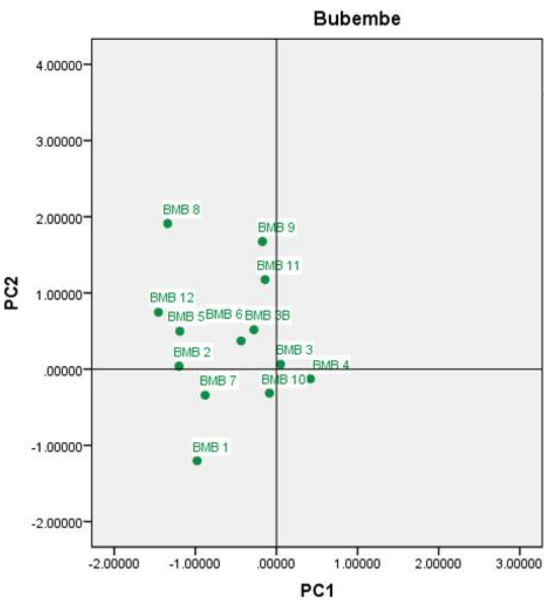


Figure 6. 22: PC1 Vs PC2 for Bubembe

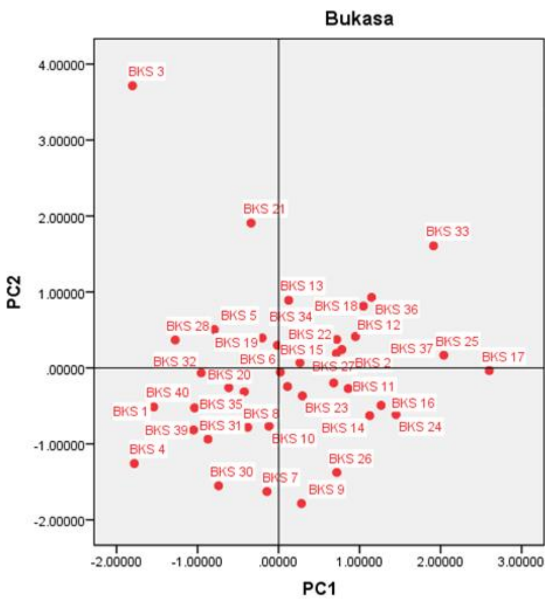


Figure 6. 23: PC1 Vs PC2 for Bukasa

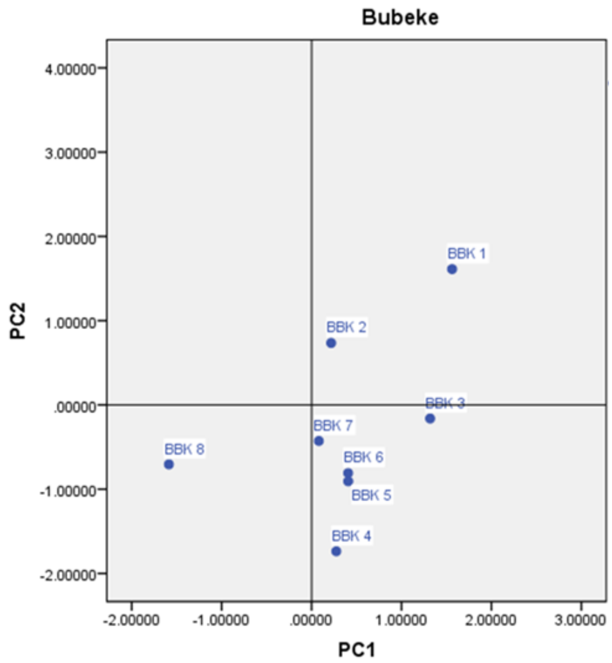


Figure 6. 24: PC1 Vs PC2 for Bubeke

The clustering of Bukasa sites around the zero mark implies a greater attribute diversity within the Bukasa assemblages. Considering Bukasa Island features the same sandstone geology as Bubeke and Bubembe, there must be some other explanation for this diversity; as a larger island with a greater range of non-ceramic resources (e.g. a greater amount of agricultural productivity, iron smelting potential, etc.) Bukasa may be attracting a greater amount of trade which is bringing in new ceramics, new raw materials, or new ideas which are influencing the ceramic manufacturing traditions.

Each of the five Principal Components were plotted against one another in the same manner as the example of PC1 Vs PC2 given above. Due to the volume of scatter plots produced from this analysis I will describe any spatial patterns emerging from the plots rather than reproduce all graphs here, though plots will be provided in cases of strong patterning. PC3 exhibits a high positive loading of grog tempers and fine grained clays, which in the Chi Squared analysis indicated an affiliation with sites in central Bukasa, though a test on the regression line did not indicate a significant patterning on a west to east basis. The general scatter plot of **PC1 Vs PC3** for all surface assemblages highlights the pre-identified central Bukasa sites BKS 20 and BKS 13 as outliers with high percentages of grog and fine grained fabrics, as well as making apparent that BKS

14, BKS 25, and BKS 40 all have higher than average fine grained and grog tempered sherd percentages. BKS 14 and BKS 25 are both also located in the central area of Bukasa Island, though BKS 40 is located further southwest amongst a cluster of sites with lower proportions of fine grained and grog tempered sherds in their assemblages.

Other than making these outliers apparent, the scatter plots for PC1 Vs PC3 simply indicate that the majority of Bubembe surface assemblages have little or no fine grained and grog tempered sherds as well as very little or no magnetic sherds or hematite inclusions, Bukasa surface sites are scattered around the 0 mark with a presence in all quadrants of the plot, and Bubeke surface assemblages remain with a high concentration of magnetic sherds with hematite inclusions and exhibit no presence of grog tempers or fine grained fabrics.

PC4 has a high positive loading for CWP and grass decorations. Therefore, unsurprisingly, a scatter plot of **PC1 Vs PC4** makes outliers with high proportions of CWP and grass decorations, such as BBK 7, apparent. Interestingly, BKS 38 and BMB 7 also appear as outliers with a high PC4 value. In the Chi Squared analysis BBK 7 was recognised as uniquely associated with CWP and grass decorations, with some evidence for an increase of CWP and grass decorations in an easterly direction, though this could not be substantiated by a regression test. We can see from Figure 6.25 that while the presence of CWP and grass decorations are greatest in the BBK 7 assemblage, and the majority of Bubeke sites do not feature CWP or grass decorations, there is a small cluster of Bubembe sites with some CWP and grass decorations aside from the BMB 7 outlier, and more Bubembe sites feature CWP and grass than Bubeke sites, though quantities of CWP and grass decorated sherds are greater on Bubeke due to the abnormally high count at BBK 7. Therefore, we can now conclude that whilst CWP and grass decorated sherds occur in greater quantities on Bubeke, they are not unique to the island but also appear in lower numbers elsewhere in the archipelago.

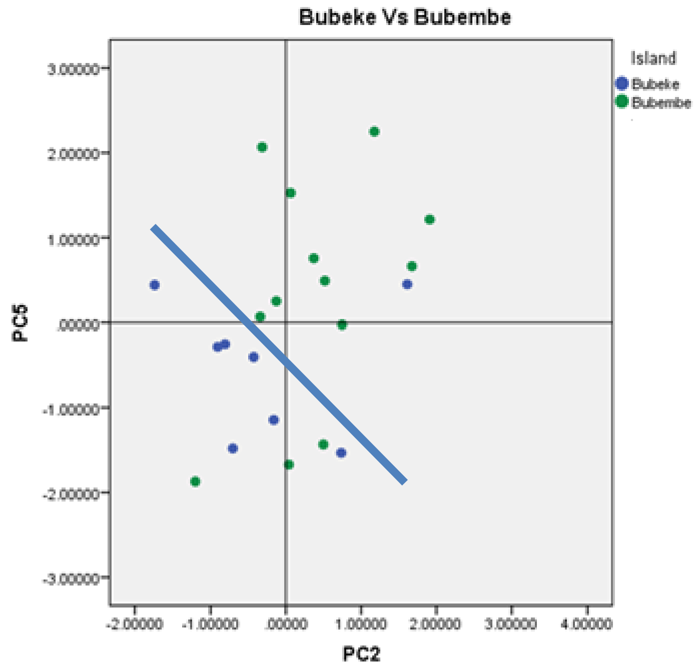


Figure 6. 25: PC1 Vs PC4 for survey assemblages from Bubembe and Bubeke

In the scatter plots for **PC1 Vs PC5**, with PC5 exhibiting a high positive loading for TGR and KPR and a high negative loading for CWR and undecorated, and PC1 remaining indicative of hematite inclusions and magnetic sherds, Bukasa sites again have a wide spread around the zero mark with a presence in all quadrants of the plot, though fewer Bukasa sites exhibit high negative loadings on both axes (indicating low magnetism and hematite, and low TGR and KPR percentages), and those which do (BKS 40, BKS 39, and BKS 3) emerge as outliers. BKS 39 and 40 are adjacent to one another and BKS 3 is located relatively close by.

The Bubembe surface collections exhibit distinct patterning when compared to the clustering of Bubeke sites in Figure 6.26. The majority of Bubembe sites concentrate in the upper left quadrant, indicating low hematite and magnetism but high incidences of TGR and KPR, whereas Bubeke surface assemblages present the opposite pattern. This matches the earlier Chi Squared and regression analyses, which indicated that TGR decorations occur in greater quantities on Bubembe Island, and are absent in assemblages further east from Bubeke (and eastern Bukasa).

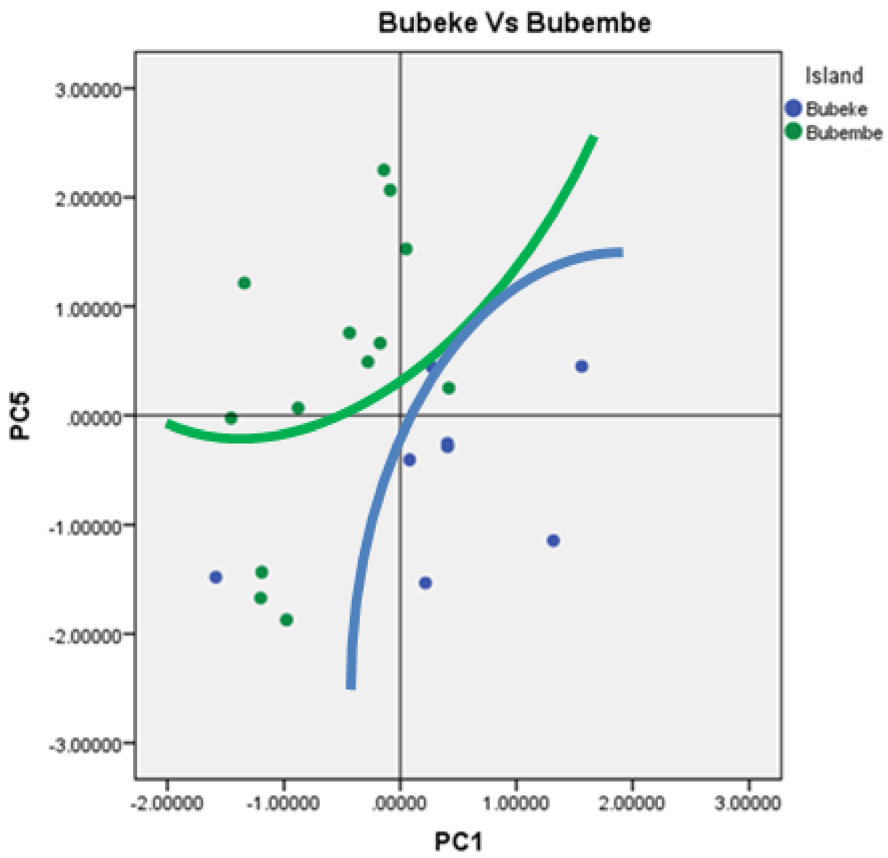


Figure 6. 26: PC1 VS PC5 for Bubembe and Bubeke surface assemblages

In the **PC2 Vs PC3** scatter plots no new patterns arise which have not already been mentioned; there is a reiteration of the absence of fine grained, grog tempered sherds in the surface assemblages of Bubeke Island, and outlier sites with high percentages of grog and fine grained clays on Bukasa. The scatter plots for **PC2 Vs PC4** indicate that on Bukasa Island the majority of sites without CWP or grass decorations feature assemblages constructed from coarse grained fabrics, whereas CWP and grass decorated sherds are featured in assemblages containing both coarse and medium grained fabrics. Similarly the Bubembe CWP and grass decorated sherds feature at sites with both coarse and medium grained clays in their ceramic assemblage. Bubeke assemblages containing CWP and grass decorated sherds differ from the other two islands by only appearing at sites dominated by coarse grained fabrics.

PC2 Vs PC5 relates the percentage of medium and coarse grained sherds (PC2) to the percentages of KPR and TGR sherds (PC5). On the scatter plots BKS 3 remains an obvious outlier site, with an assemblage high in medium grained sherds but with a negative loading on the PC5 axis indicating a low presence of KPR and TGR decorations, yet an abnormally high appearance of CWR decorated and undecorated sherds. Other than its outlier sites, Bukasa Island assemblages all scatter around the zero mark with a presence in all quadrants of the plot. There is however a noticeable difference in the scatter of Bubeke and Bubembe assemblages (see Figure 6.27), with Bubeke sites concentrating in the lower left quadrant, signifying a proliferation of coarse grained ceramics and lack of KPR/TGR decorations. Alternately Bubembe sites favour the opposite quadrant distinctive of medium grained fabrics and higher TGR/KPR decorations. These patterns have previously been identified in the Chi Squared and regression analyses, and re-iterated in the scatter plots above.

In the scatter plots for **PC3 Vs PC4**, representing the appearance of fine grained clays and grog tempers (PC3) plotted against the presence of CWP and grass (PC4), unsurprisingly based on previous observations associating these attributes with unique outlier sites, the majority of sites from all three islands concentrate in the double-negative quadrant representing a low presence of fine grained and grog tempered sherds, and a low presence of CWP and grass decorations.

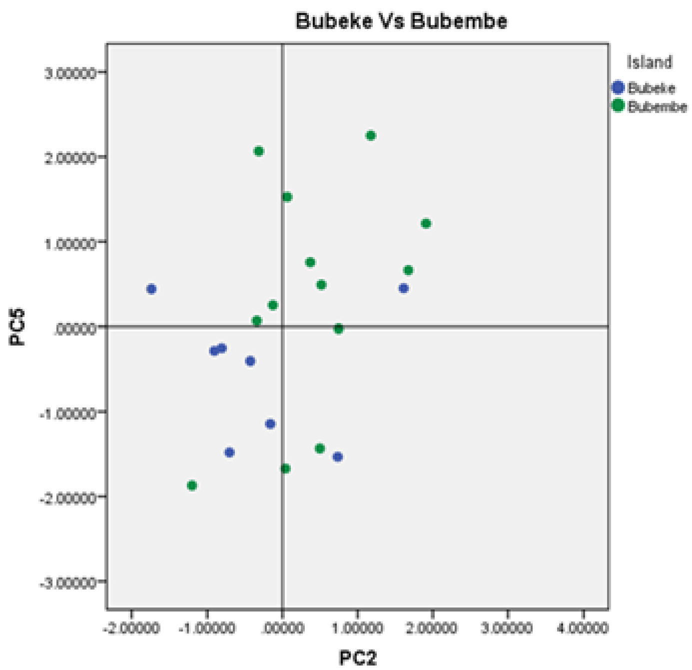


Figure 6. 27: PC2 Vs PC5 for the Bubembe and Bubeke surface assemblages

The scatter plots for **PC3 Vs PC5** examine the interaction between fine grained sherds and grog tempers (PC3) with KPR and TGR decorations (PC5). Very little new patterning emerges from the plots, which simply reiterate the unique association between the central Bukasa sites BKS 21, BKS 13, BKS 14 and BKS 40 and a heightened presence of fine grained, grog tempered sherds, and the absence of TGR/KPR decorations in the Bubeke assemblages. However a slight difference emerges between sites on Bubembe Island (see Figure 6.28). The few sites devoid of KPR and TGR but with a higher proportion of CWR and undecorated sherds (BMB 1, BMB 2 and BMB 5) do not feature fine grained ceramics or grog tempers. However the few assemblages featuring a small proportion of fine grained clays and grog tempers on Bubembe also feature a small amount of KPR and TGR decorations, though the sites with the most KPR and TGR do not feature fine grained clays or grog tempers.

The final scatter plots examine **PC4 Vs PC5**, which focuses on the interplay between CWP and grass decorations (PC4) and KPR and TGR decorations (PC5). The same outliers with high proportions of CWP and grass decorations emerge on each island (BBK 7, BBK 5, BKS 38, BKS 33, BMB 7). Again the patterns simply reflect knowledge gained from the previous scatter graphs, with Bubembe sites strongly associated with KPR and TGR decorations regardless of the presence of CWP and grass decorations, and Bubeke sites almost never associating with KPR and TGR, except for small amounts observed in the assemblages from BBK 1 and BBK 4. Bukasa sites have a side spread featuring in all quadrants of the plot, though the sites with highest proportions of CWP and grass decorations do not feature KPR or TGR decorations.

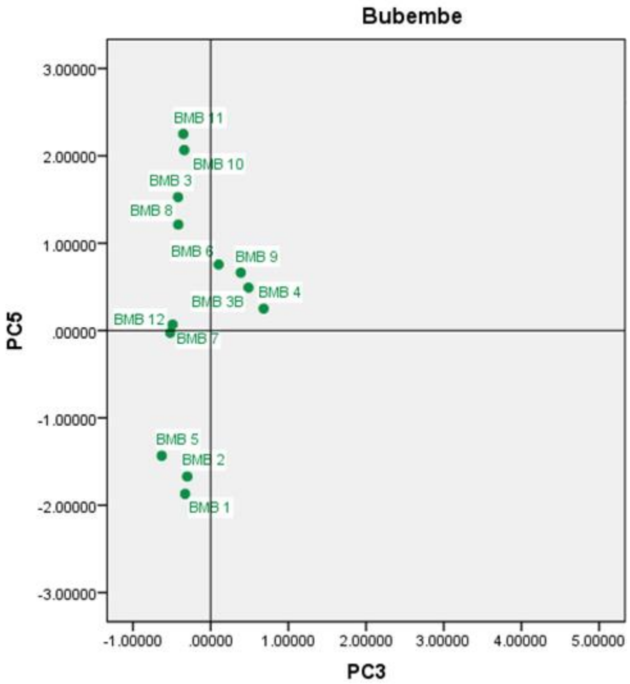


Figure 6. 28: PC3 Vs PC5 for surface assemblages from Bubembe

In summary, fabric attributes are more responsible for the variation between surface assemblages than decorative techniques, as the Eigenvector loadings for PC1, PC2, and PC3 all relate to fabric attributes. Of the decorative techniques responsible for surface assemblages patterning, only roulette techniques (CWR, CWP, KPR, TGR), grass, and the percentage of undecorated sherds are important. Throughout the PCA sites BKS 20 and BKS 3 emerge as consistent outliers in a number of plots, perhaps suggesting a unique ceramic manufacturing tradition at these locales.

Bubembe Island sites tend to be characterised by lower levels of magnetism, hematite, coarse and fine grained clays and grog inclusions, and higher levels of medium grained clays, TGR and KPR decorations, in comparison to the other two islands. Where fine grained ceramics and grog tempers occur in surface assemblages on Bubembe, they only feature at sites with KPR/TGR decorations, but never at sites with CWR decorations. While the central Bukasa sites feature more fine grained and grog tempered ceramics than other sites on Bukasa, and sites on other islands, in general the Bukasa surface assemblages are highly varied with a wide range of ceramic attributes present. The Bubeke surface assemblages are characterised by higher levels of magnetism, hematite, and coarse grained clays, and a low presence of medium and fine grained clays, grog tempers, and KPR and TWR decorations. While the assemblage from BBK 7 yielded high levels of CWP and grass decorations, which gave the impression that Bubeke Island is highly associated with these two decorative techniques in the Chi Squared analysis, this PCA shows that CWP and grass decorations feature at select Bukasa and Bubembe sites (highest levels on these islands are found at BMB 7 and BKS 38), though highest levels are still observed at BBK7. While CWP and grass decorations at Bubembe and Bukasa surface sites feature alongside both coarse and medium grained clays, on Bubeke the same decorative techniques only associate with coarse grained clays. This may reflect reproduction of the decorative techniques through observation and copying, due to their representation on different ceramic fabrics between different islands.

In accordance with the earlier Chi Squared and regression analyses, the PCA supports the increase of magnetism and hematite in an easterly direction, and the association between medium grained clays and TGR (both associated with mainland assemblages) with Bubembe Island assemblages.

6.1.8 A Discussion of the Regional Patterning across Bubembe, Bukasa and Bubeke

The premise of this study is concerned with the applicability of an attribute based method for the analysis of archaeological ceramics, as well as attempting to reveal ceramic patterning within the Sesse Islands to ascertain heterogeneity or homogeneity in manufacturing traditions and paste types. Based on the surface ceramics alone, which are much lower in number than the excavation assemblages, we are able to highlight patterns within the ceramic data through the attribute analysis method. Most importantly the attribute analysis method, which generates frequency tables of individual attributes, allows for the application of statistical testing to objectively substantiate the observed patterning within the ceramic data. The emergent patterns detailed thus far produce evidence of differences in ceramic manufacturing across the fieldwork survey area. A combination of ceramic attribute patterning with site distributions allows us to highlight which traits within the island ceramic assemblages may be influenced by interactions with mainland populations to the west, and which attributes may be a product of isolated resources (e.g. homogenous geology) and manufacturing traditions in the east. Currently we can ascertain that TGR decoration and rose quartz inclusions associate with westerly sites closer to the mainland. Quartz is found throughout the local geology (see Chapter 1 Figure 1.3 for geological map and explanation of associated minerals), though the association of rose quartz with the more westerly sites may reflect the appearance of mainland geologies on the westernmost island in the archipelago, alongside the sandstone (which is rich in white quartz) found throughout the remaining islands. Magnetism, EvGr1 and ThGr6 rims, RT5 rims, and hematite associate with the more isolated eastern sites. This patterning in magnetism follows the distribution maps of magnetic signatures generate by the Finnish Geological Survey, which indicates that the easterly parts of the archipelago lie in an area with a naturally highly magnetic geology, and the geology of the westernmost islands and the mainland shore have a naturally low magnetic signature (see Figure 6.11). We are also able to identify clusters of sites with shared attributes within the regional survey data. Fine grained clays and grog tempers are a unique feature of sites in central and (to a lesser extent) eastern Bukasa, with greatest prevalence at sites BKS 20 and BKS 13, whereas medium grained clays are more prevalent on Bubembe. BMB 10 and BMB 11 in the west of the study region both associate with TGR decoration and in general sites on Bubeke Island in the northeast of the archipelago exhibit a greater prevalence of EvGr1 rims, open-collared bowls, and cord-wrapped paddle and grass decorations. Where CWP decorations do appear on Bubembe and Bukasa, they appear in assemblages constructed from a mix of coarse and medium grained clays, whereas on Bubeke Island CWP is exclusively associated with coarse grained ceramics.

It is important to bear in mind that these patterns are all associated with surface ceramics, which may not reflect attribute patterning below ground. Therefore the same analysis methods will now be applied to the ceramic data from the test excavations (see Chapter 5 for explanation of choice of excavation sites) to determine how attribute patterning changes temporally as well as spatially within the study region. Following this, in Chapter 7 primary data from the fieldwork assemblages will be compared to existing data from other island and mainland assemblages which have been re-analysed under the same methods, to gauge a picture of ceramic change across the Lake Victoria basin.

Chapter 6 Part 2: Analysis of Excavation Ceramics on a Site By Site Basis

The results of the survey data hint towards a spatial patterning of attributes throughout the study region, highlighting sites or clusters of sites associated with specific ceramics traits such as the use of fine-grained clays, clays derived from geologies with a high magnetic signature, the presence of grog, hematite, and rose quartz inclusions, and the use of TGR and cord-wrapped paddle decorations. Seven of the survey sites were selected for test excavation (see Chapter 5 for selection criteria). Of these sites BBK 8 had no remarkable surface remains to set it apart for excavation; however upon finishing fieldwork at Bubeke two days were to be spent in lieu awaiting the next boat off the island, and so the decision was made to excavate a trench at BBK 8 due to its proximity to the campsite allowing the excavation to be completed in a short time. The excavation results were as unremarkable as the surface remains with only 33 sherds emerging from a 2x1m trench, and so BBK 8 has been excluded from the individual excavated site analysis.

Following a presentation of the individual site results I will provide a brief comparison between the amalgamated surface results and the excavation results in Part 3 of this chapter. Although the presence of ceramics on the surface may be the result of post-depositional processes shifting ceramics upwards in the soil, we would expect the ceramic attributes more prevalent on the surface to be generally younger than attributes more prevalent below the surface, and therefore this may highlight ceramic traits which can be considered younger, and attributes with an affinity to excavated (and older) contexts. While in a region with a well dated and well understood ceramic sequence this would be a fruitless exercise, here a comparison of surface and sub-surface remains is useful as the regional ceramic dating sequence is dubious (see Chapter 2 for a summation of the current ceramic knowledge and Chapter 3 for a critique), and therefore even a basic distinction of ‘potentially older’ and ‘potentially younger’ is appropriate in a region where ceramic sequences have not yet been fully uncovered nor adequately dated.

6.2.1 Site Bukasa 20 Ceramic Analysis

Site BKS 20 exhibited the best stratigraphic integrity of any of the excavation sites. Whereas archaeology elsewhere in the islands is characterised by shallow trenches with a single horizon of archaeological activity (Ashley 2005), excavations at BKS 20 yielded distinct contexts with the presence of several post holes within the trench vouching for the integrity of these layers as well as the presence of some kind of structure (see Chapter 5 Figures 5.22 – 5.24, and 5.26 – 5.27). Ceramics were found throughout the trench, and iron slag was recorded from the surface down to (and including) context 008, with the bottom of context 008/ the top of context 010 yielding a finished iron spearhead. Although the average analysed sherd count for island sites tends to be lower than mainland sites, we must remember that a large quantity of fragmented sherds under 2x2cm in size were not analysed. Table 6.3 shows the weight of these fragmented sherds by context, with a percentage contribution to the overall context find weight; an average of 55% of the ceramics from each context were too fragmented for analysis and thus the true quantity of ceramics at BKS 20 is higher than presented in this analysis.

As with the surface analyses, eight attribute categories were examined for each excavation site. For the purposes of significance testing certain contexts were grouped together (these groupings are indicated on Table 6.6). The upper layers of a trench tend to be affected by bioturbation and mixing of the soil, and therefore the surface assemblage and contexts 001 and 002 were grouped together jointly for this reason and as their attribute compositions are similar. Based on sherd counts contexts 004, 006 and 008 appear to be the main archaeological horizon; however whilst the attribute compositions for 006 and 008 are similar the composition of context 004 is noticeably different and thus context 004 was analysed alone whereas contexts 006 and 008 were grouped. Finally contexts 009, 010 and 011 contained very few ceramics so they were grouped together as the final archaeological deposits at the bottom of the trench. Despite the lack of ceramics, some post holes extend down into these lower contexts and the iron spearhead was recovered from between contexts 008 and 010. These context groupings may be referred to as surface/upper contexts (surface/001/002), young archaeological context (004), older archaeological context (006/008), and basal contexts (009/010/011).

Context	No.Sherds	Weight(G) sherds<2x2	% of total context find weight
001	23	600	61.22
002	35	1600	68.97
004	95	2290	51.81
006	117	2430	45.94
008	90	1370	35.68
009	1	60	40
010	7	100	47.62
011	2	1050	95.45

Table 6. 6: counts of analysed sherds and weights of un-analysed sherds under 2x2xm in size from sub-surface contexts at Bukasa 20, with context aggregates indicated by red borders and grey shading

Bukasa 20 Fabric Attributes

Beginning with fabric coarseness, the expected frequencies from the basal layers were too low for significance testing. The percentage of medium grained sherds fluctuates up and down so often between the contexts that medium grained sherds cannot be used as a temporal indicator at BKS 20. However the surface/upper levels and the younger archaeological level (context 004) associate with a heightened number of coarse grained sherds and conversely contexts 006/008 correlate with a much higher than expected proportion of fine grained sherds, which are at a dearth in the younger layers. This coordinates with the survey/excavation patterns presented in Part 3 of this chapter which indicate that fine grained sherds associate with depth and hence age. The natural sandstone geology of Bukasa Island (see Chapter 1 Figure 1.3) contains a range of grain sizes from fine to coarse, and therefore perhaps in the older layers of the trench manufacturing decisions were made to sort the clays into particle sizes for the manufacture of ceramics, a procedure which changed at a later date.

Amongst the inclusions counts only rose quartz appeared infrequently enough to be considered for analysis, with the remaining inclusion types within each context group subject to Chi Squared testing. The results indicate that hematite and feldspar are over-represented in the surface/upper layers whilst grog is lacking, and levels of mica are not outside the predicted range. Within the younger archaeological layer however the only distinctive association is with a higher than expected frequency of mica. The older archaeological layers exhibit heightened levels of quartz and grog, and a distinct depletion of feldspar and mica. No patterns are observable in the basal layers due to low sherd counts.

Overall the main inclusion patterning for the trench is an increase of grog with depth (which matches the preliminary surface/excavation patterning), and a decrease of feldspar with depth. These patterns are displayed on the graphs in Figures 6.29 and 6.30. Hematite appears significantly more frequently than expected on the surface, but levels of hematite in the younger and older excavation layers are at, rather than below, expected levels. Mica features at expected levels in the surface and upper layers, though further down in the trench there is a significant association between mica and the younger archaeological context, and a lack of mica in the older archaeological contexts. Quartz appears more frequently than expected in the older archaeological contexts but at expected levels elsewhere. As with the general surface and excavation patterning presented later in this chapter, grog correlates with fine grained sherds, and both attributes increase with depth. Mica also decreases with depth overall as observed in the general patterns, though here there are two distinct archaeological periods: a younger one which features a lot of mica inclusions and an older one with a depletion of mica, both of which are different to the surface layers where mica appears at expected levels. Feldspar illustrates a decreasing association with depth at BKS 20, which is not present in the general survey/excavation depth patterning. The geology of the westernmost island in the archipelago and the mainland shores of Lake Victoria indicate that while mica, quartz and feldspar are common throughout the region, they occur in greater quantities in the rock types found closer to the mainland, and outside the Sesse Islands. The increase in mica and feldspar in the younger ceramics may be indicative of a later diversification of clay/temper sources or increased interaction with populations beyond the Sesse archipelago.

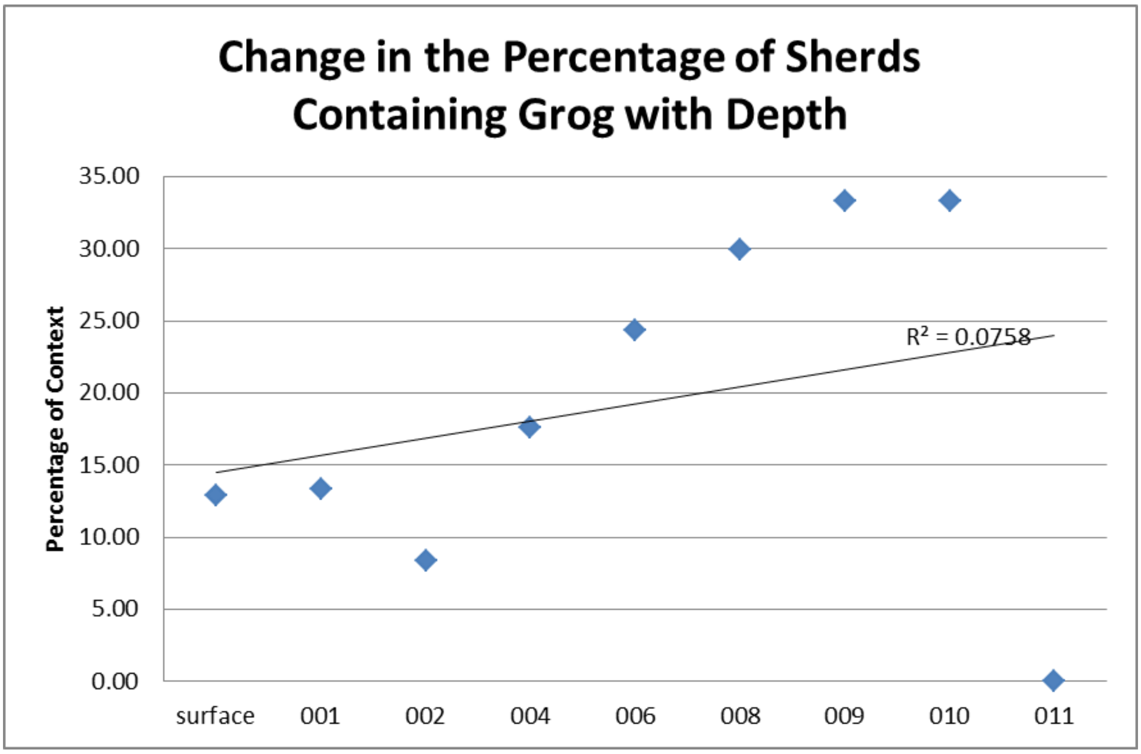


Figure 6. 29: graph of the change in the percentage of grog tempered sherds with depth at Bukasa 20 (n = 210)

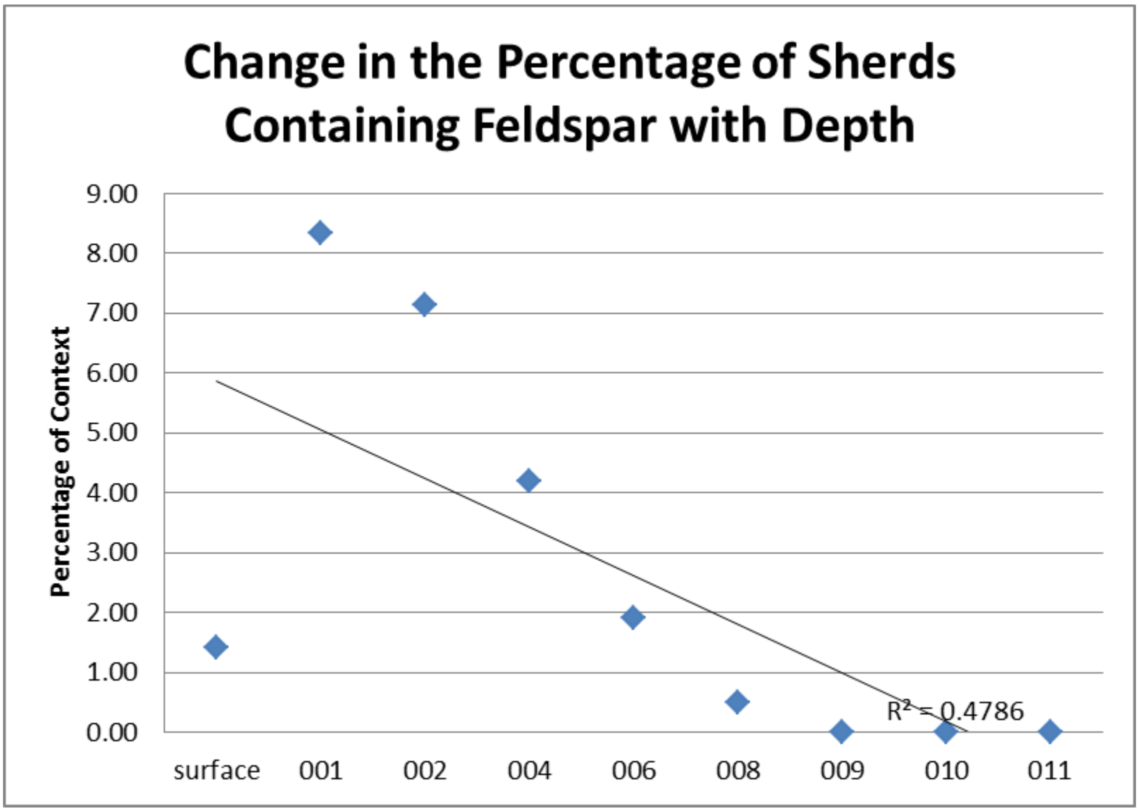


Figure 6. 30: graph of the change in percentage of sherds containing feldspar with depth at Bukasa 20 (n = 29)

Only an eighth of the sherds in the entire BKS 20 trench were magnetic. A Chi Squared test comparing the upper and lower levels of the trench confirms that proportions of magnetism decrease with depth, which correlates with general comparisons between surface and excavation assemblages. Levels of magnetism are higher than expected in the surface/upper contexts and lower than expected in the older archaeological levels, with quantities suggesting proportions of magnetic sherds decrease at a steady rate with depth. This is illustrated in Figure 6.31. Hematite is slightly more prevalent in the upper contexts, which correlates with the patterning in magnetism and the theory that the iron rich hematite may be the source of the magnetism within the Sesse Islands geology and ceramics.

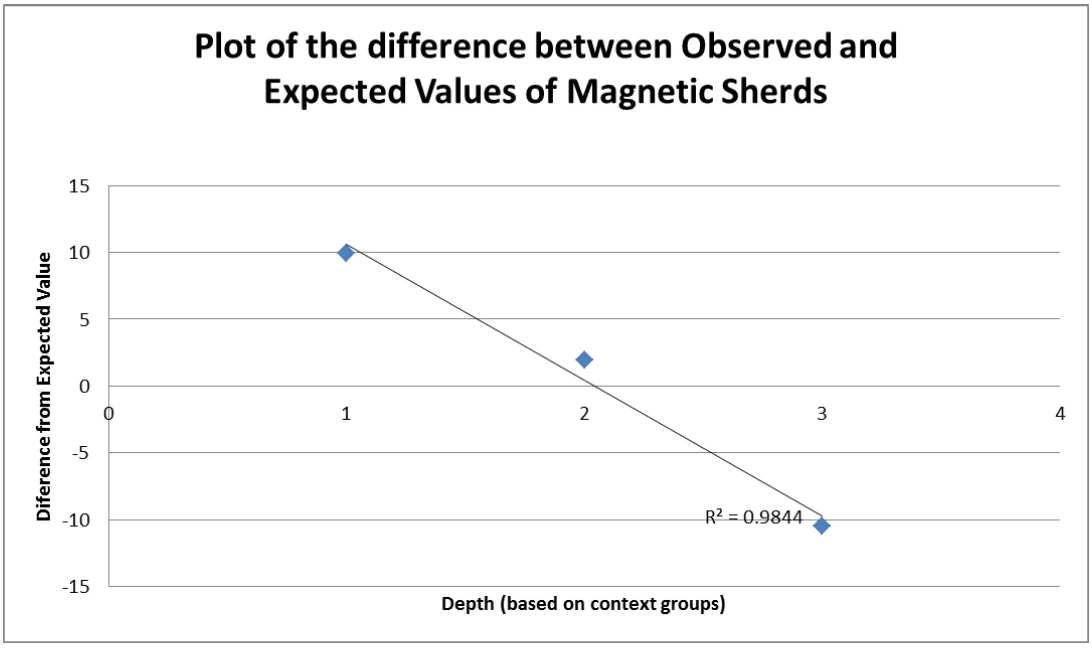


Figure 6. 31: Difference between Observed and Expected values of magnetic sherds with depth at Bukasa 20 (n = 55)

The increase in magnetism correlates with a decrease in grog, and the reasons for this may be a change in the inclusions being added to the raw clay by the potters. A number of ethnographers working in eastern and central Africa record that tempers and inclusions are added to raw clays until the desired 'feel' of a workable fabric is achieved (Gosselain 1995; 1998; Dietler and Herbich 1998, Livingstone Smith 2000, Kohtamaki 2010). Dietler and Herbich's (1998) work on the Luo potters on the eastern shores of Lake Victoria indicates that grog was the preferred temper added to the clay, though with time as sources of grog dwindled potters began to experiment with other inclusions (e.g. fired clay blanks, burnt earth, charcoal) to achieve the same 'feel' of clay. The same situation at BKS 20 could result in older ceramics containing grog, and younger ceramics containing a greater variety of inclusions (some of which may be magnetic), as other readily-available inclusions are incorporated into the ceramic fabric. This is discussed further in Chapter 8.

Bukasa 20 Decorative Techniques

Ten different decorative techniques are present at BKS 20 though only KPR, stylus, and comb appear in quantities high enough for significance testing. Frequencies of undecorated sherds fluctuate, with the surface/upper layers and the older archaeological layers exhibiting a lower than expected number of undecorated sherds, but the younger archaeological layer having a greater than expected frequency (see Table 6.7). Therefore no real temporal association could be ascribed to the proportion of undecorated sherds within an assemblage.

Undecorated Sherds			
	O	**E**	**Total**
surface/001/002	56	61.70	**95**
004	79	61.70	**95**
006/008	125	136.53	**209**
009/010/011	5	6.50	**265**

Table 6. 7: Observed (O) and Expected (E) values of undecorated sherds in the context aggregates from Bukasa 20 (critical Chi-value = 7.81; actual Chi-value = 6.7; P-value = 0.082)

KPR decorations are proven to be at lower than expected levels in the older contexts and more prevalent in higher levels of the trench, whereas stylus and comb are associated with the older deposits and under-represented higher up in the trench. The rarer decorations are slightly less numerous in the older archaeological layers than expected, but the difference between observed and expected values is not great enough to produce a definitive pattern.

Therefore, in accordance with the basic depth patterns established from the differences between the excavated and surface assemblages later in this chapter, at BKS 20 comb decorations are associated with older contexts and KPR with younger contexts. Stylus decorations so far have not indicated any geographical nor depth patterning at any survey or excavation site in this study. However at BKS 20 there is a statistically supported depth patterning to suggest stylus decorations are older at the site, and found alongside a prevalence of comb decorations in the older layers. A further OSL dating of a comb decorated sherd from context 008 and a stylus decorated sherd from context 006 indicate the two to be contemporaneous, with a convergence of dates of these two sherds from AD 1204-1304 (these are presented in Chapter 5 Table 5.7 and discussed further in Chapter 8). Previous ceramic typologies in the great lakes region purport comb decorations to be more recent than stylus decorations (Ashley 2005), but here they co-occur in the same context.

CWP, clay roulette, and grass decorations occur exclusively in the surface levels at BKS 20 but numbers are too small to determine whether the sub-surface absence is indeed significant.

Bukasa 20 Rim Sherd Attributes Analysis

Rim sherds are rare below the surface at BKS 20, with 29 recorded from the surface/001/002 contexts, 5 from context 004, 14 from contexts 006/008, and none below this. Bowls dominate the site overall at a count of 29, with 17 jars recorded throughout the trench and only one open-collared bowl and one collared jar. Although bowls occur in slightly higher than expected numbers in contexts 006/008, significance testing indicates this increase is not high enough to be considered a unique pattern. From these rim sherds five different everted rim forms, six different thickened rim forms and three different simple rim forms were recorded. However with such a wide range of rim forms and low rim counts no patterns for any single rim form could be associated with change in depth, though generally everted rims are slightly lower than expected and simple rims higher than expected in the older archaeological context. Within the rim diameter analysis there is a preliminary association between large to very large RD5-RD7 vessels (24-42cm) and the uppermost surface/001/002 contexts; in fact only one sherd within this size category was recovered from the archaeological contexts. However low sherd counts mean a statistical test cannot be carried out to support this association. Again numbers are too low for any patterning to be established between change in rim thickness and depth.

Bukasa 20 Principal Components Analysis

A Principal Components Analysis was conducted on the excavated ceramics from Bukasa 20. For this PCA each context was considered separately and compared to one another to allow natural groupings between contexts to be revealed, with contexts contributing less than 1% of the total sherd count (or less than 5 sherds in total) removed from the analysis. This left the following contexts for BKS 20: surface, 001, 002, 004, 006, 008, and 010. As with the surface assemblages Principal Components Analysis in Chapter 6 Part 1, a preliminary PCA was first carried out on fabric attributes and on decorative techniques to determine which attributes contribute more than 15% of the variance between contexts, to qualify their inclusion in an overall PCA for BKS 20. Rim sherd attributes were excluded from the PCA, due to their sparse presence in contexts below the surface, with an average of four to five rim sherds per sub-surface context.

In the two preliminary PCAs, any attribute contributing less than 1% to the total sherd count, or a count of less than 5, was removed from the analysis. For Fabric attributes this left: coarse, medium, and fine grains, quartz, hematite, feldspar, mica, limestone, and grog inclusions/tempers, and magnetic/not magnetic. A PCA including these attributes produced only two Principal Components with an Eigenvalue above 1, with PC1 (characterised by a high positive loading of coarse grained clays, mica, hematite and feldspar inclusions and magnetism, and a high negative loading of fine grained clays and quartz and grog inclusions/tempers) responsible for 66.862% of the variance, and PC2 (characterised by a high positive loading of medium grained clays, feldspar and magnetism, and a high negative loading of fine grained clays, grog and limestone inclusions/tempers) responsible for 18.268% of the variance between contexts. Therefore all fabric attributes were included in the full PCA for BKS 20.

Amongst the decorative techniques, the following attributes were considered in the preliminary PCA: KPR, stylus, comb, CWR, TGR, and undecorated. This PCA again resulted in two Principal Components with an Eigenvalue above 1. PC1 (characterised by a high positive loading of CWR, KPR, and TGR, and a high negative loading of 'undecorated') was responsible for 57.850% of the variance between contexts, and PC2 (characterised by a high positive loading of comb and stylus, and a high negative loading of 'undecorated') was responsible for 30.281% of the variance. Therefore all decorative techniques listed here were included in the full PCA for BKS 20.

The PCA for BKS 20, utilising all fabric and decorative attributes listed above, resulted in three Principal Components with PC1 contributing 52.468% of the variance between contexts, PC2 contributing 25.887% of the variance, and PC3 responsible for 11.944%. The component plot in Figure 6.32 indicates which attributes frequently appear in the same contexts together. Obvious clusters have been coloured accordingly. The three roulette decorative techniques, CWR, TGR, and KPR tend to appear in depth association with one another. Fine grained clays, grog and limestone inclusions/tempers and comb decorations again associate in a tight cluster, and nearby though slightly disjointed, stylus decorations and quartz inclusions are closely grouped to one another. Towards the right of the scatter plot the clustering of points is not as tight, though coarse grained clays and mica inclusions are frequently found together, perhaps associated with the slightly more dispersed hematite and feldspar inclusions, and occurrence of magnetism. Medium grained clays are nearby this group, though without any strong associations to another attribute, and the absence of decoration does not bear any specific affinity to any other attribute.

These groupings are reflected in the Eigenvector loadings for the three components, listed in Table 6.8. PC1 exhibits a high positive loading of coarse grained clays, magnetism, mica, feldspar and hematite inclusions (yellow and pink coloured attributes in Figure 6.32), and a high negative loading of fine grained clays, grog, quartz and limestone inclusions/tempers, and stylus and comb decorations (green and blue coloured attributes in Figure 6.32).

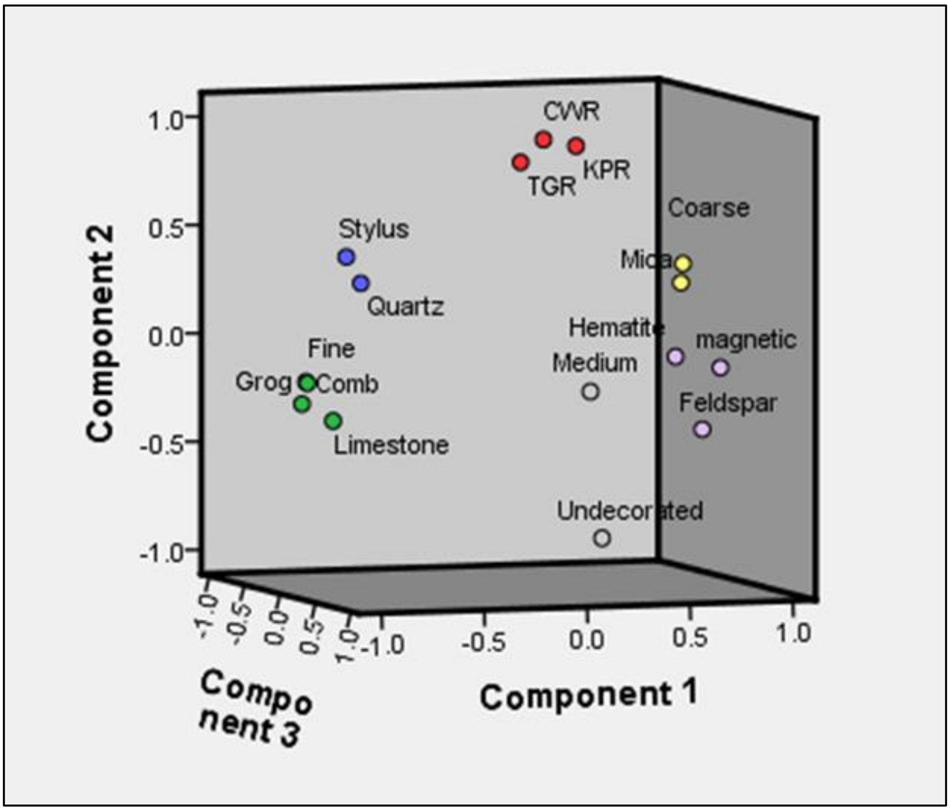


Figure 6. 32: Component Plot of attributes from BKS 20, with clusters of associated attributes coloured accordingly

	Component		
	1	2	3
Coarse	.909	.341	-.178
Comb	-.897	-.164	-.237
magnetic	.891		.403
Grog	-.889	-.269	-.334
Quartz	-.846	.346	.371
Mica	.841	.269	
Fine	-.793	-.188	-.561
Feldspar	.778	-.366	.477
Hematite	.760		.151
Stylus	-.758	.427	
CWR	.157	.953	
KPR	.362	.906	
Undecorated	.397	-.883	.170
TGR		.862	.149
Medium		-.129	.982
Limestone	-.628	-.381	-.655

Table 6. 8: Eigenvector loadings for each Principal Component from BKS 20 (values below .10 have been excluded from the table)

PC2 is defined by a high positive loading of CWR, KPR, and TGR decorations (coloured red on Figure 6.32) and a high negative loading of 'undecorated'. Finally PC3 had a high positive loading of medium grained clays, and a high negative loading of fine grained clays and limestone.

A scatter plot of **PC1 Vs PC2** (Figure 6.33) shows a clear clustering of the lower contexts in the trench (006, 008, 010), with a negative loading on the PC1 axis indicating an association between these deeper, and therefore presumed older, contexts and fine grained clays, grog tempers, limestone and quartz inclusions, and stylus and comb decorations. This matches interpretations from the Chi Squared test, which suggested fine grained clays, grog tempers, and comb and stylus decorations were associated with deeper contexts and older ceramics at BKS 20. The placement of these contexts around the 0 mark on the PC2 axis indicates these deeper assemblages have little association with the KPR, CWR and TGR decorations, which load positively on PC2, with a slight association between context 010 and an absence of decoration due to its negative loading on PC2.

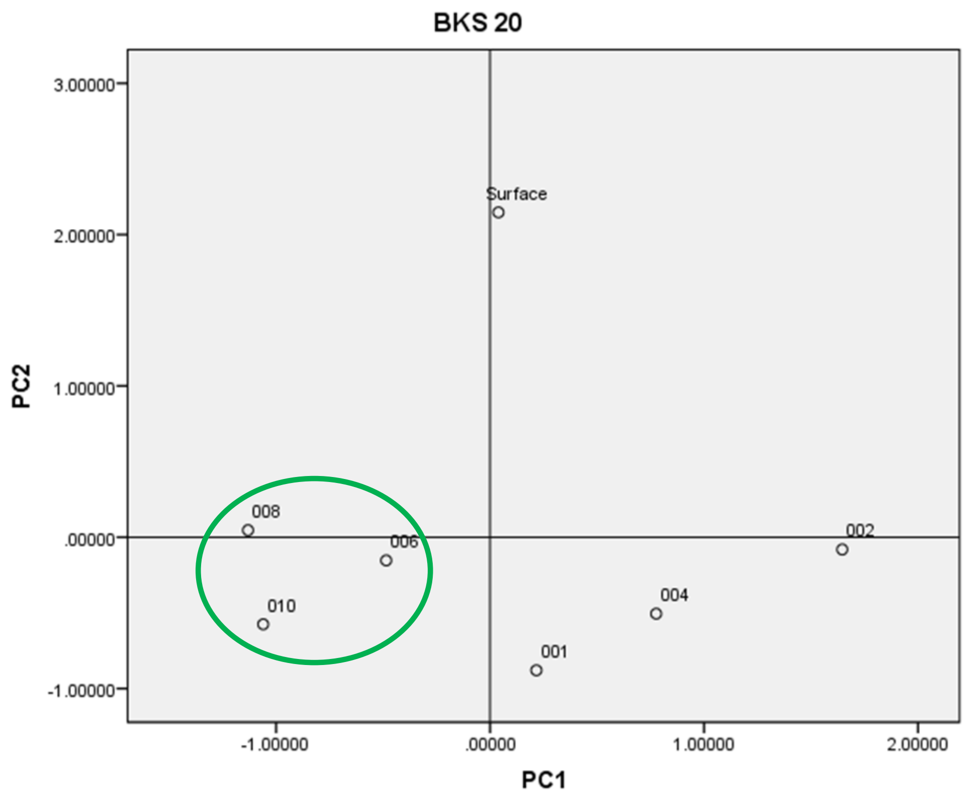


Figure 6. 33: Scatter plot of PC1 (+ loading of coarse grained clays, magnetism, mica, feldspar hematite / - loading of fine grained clays, grog, quartz, limestone, stylus, comb) Vs PC2 (+ loading CWR, KPR, TGR / - loading undecorated) for BKS 20

The surface assemblage loads highly on PC2 and appears to be unaffected by the attributes associated with PC1, supporting the results from the Chi Squared test which suggest roulette decorative techniques to be associated with shallower and younger contexts within the trench at BKS 20. Contexts 001, 002 and 004 are more scattered on this plot; ceramics in all three contexts appear to associated with coarse grained clays, magnetism, mica, feldspar and hematite inclusions to varying degrees, and while context 002 is unaffected by axis PC2, contexts 001 and 004 both associate more strongly with the absence of decoration than the roulette decorative techniques.

In a comparison of **PC1 Vs PC3** clustering is less apparent (see Figure 6.34). The surface assemblage is unaffected by either Component. Contexts 002 and 004 indicate some similarities in their shared positive loading on PC1 (associated with coarse grained clays, magnetism, mica, feldspar and hematite), and a negative loading on PC3 (indicating the presence of some fine grained clays and limestone inclusions). Amongst the lower three contexts, which already associate with fine grained clays and grog inclusions due to their negative placement on the PC1 axis, context 010 features limestone inclusions, whereas context 008 also includes some medium grained clays. 006 is largely unaffected by the attributes associated with PC3. The positioning of 001 high on the PC3 axis indicates a predominance of medium grained clays in its assemblage.

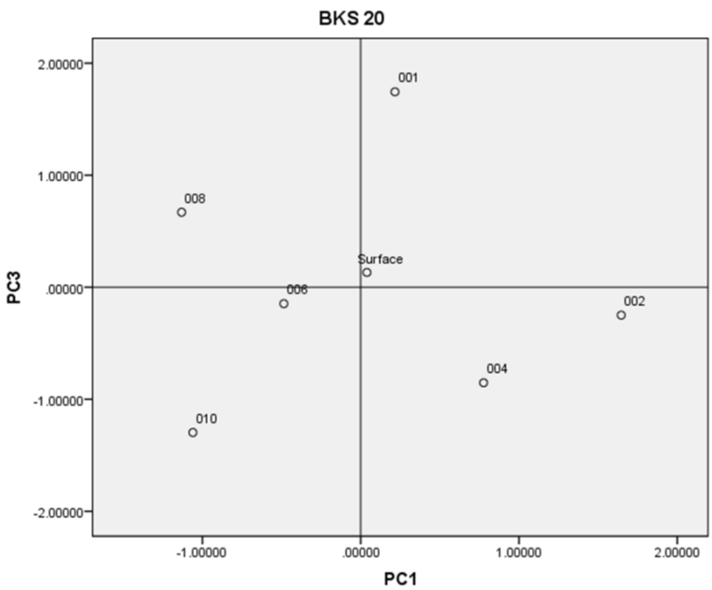


Figure 6. 34: Scatter plot of PC1 (+ loading of coarse grained clays, magnetism, mica, feldspar hematite / - loading of fine grained clays, grog, quartz, limestone, stylus, comb) Vs PC3 (+ loading of medium grained clays / - loading of fine grained clays, limestone) for BKS 20

The scatter plot of **PC2 Vs PC3** (Figure 6.35) reiterates the above patterning from a slightly different viewpoint; again only the surface assemblage has any association with roulette decorative techniques, exemplified by the high positive loading on PC2, with a negative loading on this axis simply implying a higher presence of undecorated sherds in comparison to roulette decorated sherds. The loadings on PC3 again indicate that contexts 008 and 001 contain some medium grained sherds, whereas contexts 002, 004, 006, and 010 instead contain more fine grained sherds and feature limestone inclusions in their ceramics. This matches the general patterning from the surface assemblage PCA and Chi Squared tests which indicated that sites in central Bukasa, such as BKS 20, have a general association with fine grained clays regardless of stratigraphic depth, though from Figure 6.33 and from the preceding Chi Squared test on the BKS 20 excavated ceramics we deduce that fine grained clays and grog tempers do show some increase in frequency with depth.

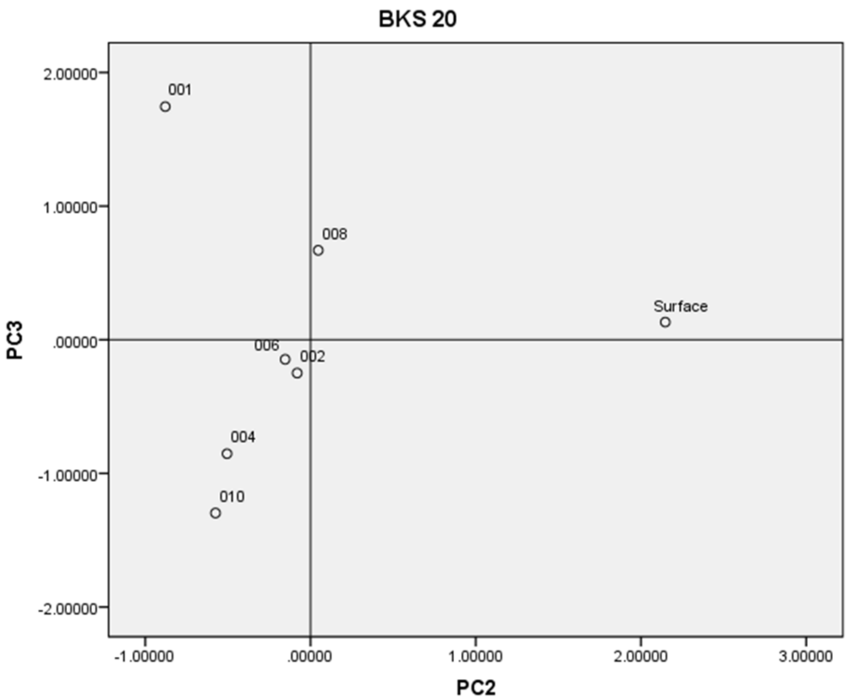


Figure 6. 35: Scatter plot of PC2 (+ loading CWR, KPR, TGR / - loading undecorated) Vs PC3 (+ loading of medium grained clays / - loading of fine grained clays, limestone) for BKS 20

Finally, a three dimensional plot of PC1, PC2 and PC3 (Figure 6.36) indicates definite similarities between the ceramics assemblages from 006, 008, and 010. The shallower contexts are less closely associated, though again there may be some clustering between contexts 002 and 004. Based on this PCA, the contexts from BKS 20 could theoretically be grouped as: surface, 001, 002/004, and 006/008/010, based on similarities in their ceramic assemblages. While the associations between the upper contexts are more dubious, there appears to be no doubt about the tight grouping between the lowest three contexts.

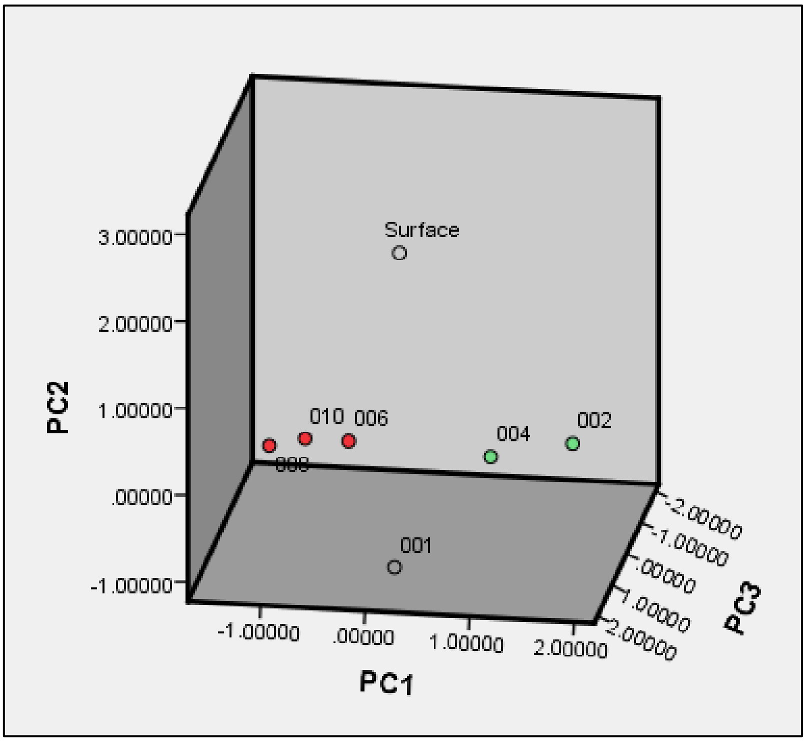


Figure 6. 36: Scatter plot of PC1, PC2, and PC3 for BKS 20, with potential context groupings coloured accordingly

Bukasa 20 Ceramic Analysis Summary

Based on this analysis the ceramics at Bukasa 20 can be split into three phases. The oldest (contexts 006/008/010) is characterised by a high proportion of fine grained fabrics and few coarse grained fabrics, higher proportions of both comb and stylus decorations and lower occurrences of roulette decorations, low proportions of magnetism and hematite, and high proportions of quartz and grog alongside low percentages of feldspar and mica containing sherds. The intermediary phase (context 004, possibly including context 002) has a smaller range of distinctive features, with a high proportion of coarse and medium grained fabrics, a high proportion of undecorated sherds, and higher levels of mica. The youngest sub-surface phase (001) is characterised by a higher proportion of coarse grained fabrics, a high proportion of magnetism, high proportions of hematite and feldspar, and low proportions of grog. Finally the surface assemblage is characterised by a high incidence of roulette decorative techniques, though stratigraphically speaking few conclusions can be made about the surface assemblage, other than suggesting these ceramic traits may be combined with the younger sub-surface layers. There are no statistically associated patterns in the decorative techniques used in the youngest sub-surface phase, though from observation there is a wide range of decorative techniques applied to the younger ceramics, with a high incidence of roulette decorations on the surface, and a lower than expected occurrence of stylus and comb decorations throughout the upper and surface contexts.

The dated sherds from contexts 006 and 008 are very important in questioning the universally presented typological associations of 'Urewe ceramics' in previous Great Lakes ceramic studies (Ashley 2005; 2010). The dated sherds from BKS 20 are presented in Chapter 5 and discussed in detail in Chapter 8, but essentially we may note again here that the stylus decorated sherd form context 006 dated to AD 1204 – 1304 is decorated with an incised pattern which matches descriptions and illustrations of typical 'Urewe Ware' throughout the Great Lakes region. However, Urewe is supposed to be confined to a date range of 500 BC – AD 1000 (Ashley 2005), based on a finite number of radiocarbon dates assigned to charcoal recovered from stratigraphic contexts containing Urewe sherds. Furthermore, Urewe is recognised by its distinct decorative style, as no other decorative technique has been recorded as overlapping with the neatly incised Urewe motifs; the occurrence of sherds decorated with other tools within the same context as the Urewe has been simply explained by post-depositional disturbances (e.g. at Namusenyu (Reid 2003b; Ashley 2005; 2010)). Yet here we have a comb sherd from context 008 at BKS 20 dated to AD 1204 – 1344; not only does the 'Urewe' phenomenon appear to date later than previously proposed, but it also co-existed alongside decorative techniques which were presumed to be younger in date. This sheds major doubt on the designation of 'Urewe' and other ware-types in the Great Lakes region, suggesting that the ceramics cannot be taken as typological indicators of chronological phases.

6.2.2 Site Bubeke 1 Ceramic Analysis

A 2x1m test pit was dug at BBK 1 due to time constraints (all other excavation trenches were 2x2m). The site yielded a single archaeological horizon of activity with three sub-surface contexts: 001 (disturbed upper layer of trench), 002 (main archaeological horizon), and 003 (basal layer with few archaeological remains). No archaeological features were recorded in the trench. A total of 150 sherds were uncovered, though we may hypothesis that as this trench was half the size of all other test pits a comparable total would be 300 sherds. Aside from ceramics slag was also associated with the surface and context 001, and highly fragmented pieces of tuyere with very porous slag encrustations were recovered from context 002. Table 6.9 shows the weight and percentage contribution of the un-analysed sherds under 2x2cm in size from each context; the percentage of these fragmented sherds clearly decreases with depth with overall percentages and weights of fragmented sherds much lower than observed at any other excavation site. For the purposes of a statistical analysis aimed at examining attribute variation with depth, contexts were amalgamated into two groups: surface and context 001 (disturbed upper layers of trench), and context 002 joint with 003 (main horizon of archaeological activity). The observed and expected values were compared for each attribute within these two groups and the Chi Squared test applied to the data where appropriate.

Context	No. analysed sherds	Weight (G) sherds<2x2cm	Percentage of total context find weight <2x2cm
001	36	270	40.3
002	80	240	15.19
003	13	40	7.84

Table 6. 9: Counts of analysed sherds and weights of un-analysed sherds from each sub-surface context at Bubeke 1. Context aggregates are highlighted in red and coloured accordingly

Bubeke 1 Fabric Attributes

The results of a Chi Squared test on the fabric coarseness data indicates that coarse and medium grained sherds associate more strongly with the upper levels of the trench and are lacking in the lower levels. The opposite is true for fine grained sherds which are distinctly associated with the deeper levels of the trench. This is displayed graphically in Figure 6.37, with a significance test on the illustrated regression line supporting the increase of fine grained sherds with depth through a P-value of 0.019.

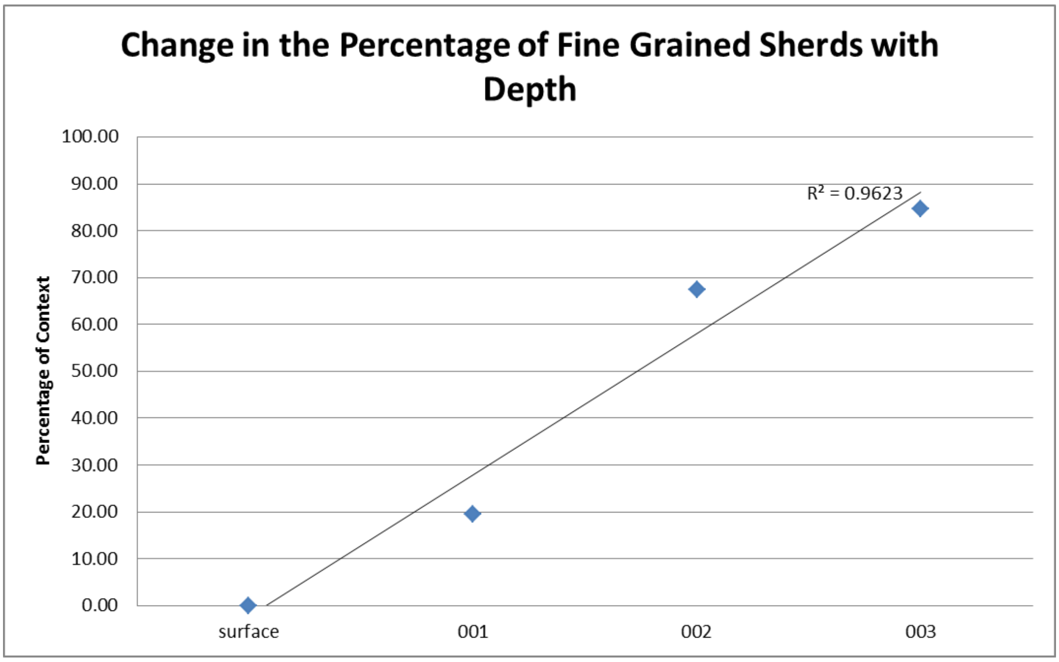


Figure 6. 37: change in the percentage of fine grained sherds with depth at BBK 1 (n = 72)

Among the different mineral inclusions recorded at BBK 1 limestone/shell and rose quartz are both rare with only one occurrence each and therefore cannot be analysed. With only seven occurrences, feldspar also featured too rarely for analysis. The remaining quartz, hematite, mica and grog temper counts were subject to a Chi Squared test. Quartz was found to be present in substantial levels throughout the trench with no depth patterning. Hematite and mica however demonstrated an association with the younger levels of the trench, and grog with the older levels (see

Table 6.10). This mirrors the general patterns of difference presented later in this chapter between the surface and excavation contexts and supports the notion propagated at BKS 20 that the use of grog as a temper correlates with age, with increasing proportions of mica in younger ceramics perhaps indicative of an increased interaction with the more westerly island populations and mainland populations, where the geology is naturally richer in mica.

Grog			
	O	E	Total
Surface + 001	10	33.52353	**139**
002 + 003	72	48.47647	**201**
Total	**82**	**82**	**340**

Table 6. 10: Observed (O) and Expected (E) levels of grog in the younger and older context aggregates at Bubeke 1, with a critical Chi-value of 3.84, an actual Chi-value of 27.92, and a significant P-Value of 0.000000126 indicating that grog associates strongly with contexts 002+003

One seventh of the sherds in the trench at BBK 1 were recorded as magnetic, with the Chi Squared results supporting distinct association between magnetism and upper layers, and a decrease in magnetism with depth.

Bubeke 1 Decorative Techniques

The range of decorative techniques present at BBK 1 is small with only KPR and stylus occurring in high enough numbers for analysis. Observed counts of undecorated sherds in both levels of the trench matched the expected values and thus were not subject to a Chi Squared test. KPR sherds emerged with an association to the upper layers of the trench and depletion in the lower layers, which matches general patterning observed elsewhere in this study. Stylus decorated sherds, while slightly more frequent than expected in lower layers, produced no definitive contextual associations. CWR decorations, though uncommon overall at the site, were only present at the surface.

Bubeke 1 Rim Sherd Attributes

Thirty-six rim sherds were recorded at BBK 1 with exactly half from the upper layers and half from the lower layers. Though the overall number does not appear high due to the small nature of island assemblages, at BBK 1 rims represent 23.53% of the total sherd count, which is higher than average; amongst all excavated sites rim sherds equate to an average of 19% of the total sherd count. Twenty of the rims at BBK 1 are from jars, 15 from bowls, and only one from a collared jar with no other vessel form present. The upper layers contain fewer jars and more bowls than expected whereas the opposite pattern pervades the lower layers. However the association between jars and the lower levels and between bowls and upper levels is not substantial enough to be considered a temporal pattern and may be the result of coincidence.

Five different everted rim forms, two thickened rim forms and two simple rim forms were recorded at BBK 1. However only EvGr3 rims (everted, flared and un-thickened) and ThGr3 rims (closed and externally thickened) occur in large enough quantities for the individual rim form analysis (see Figure 6.38). Upper levels have less everted rims in general than expected and more thickened rims whilst the opposite is true for lower levels where thickened rims are completely absent. The individual rim form patterns reflect this with a lack of EvGr3 rims in upper levels but an abundance in the lower levels where ThGr3 rims are lacking. Statistical testing indicates that there is an association between EvGr3 rims and lower levels though the overall trend for everted rims to associate with depth is unsubstantiated. ThGr3 rims conversely exhibit a proven association with upper levels due to their complete absence from lower levels, with a complete lack of thickened rims of any kind in lower levels despite the plethora in upper contexts.

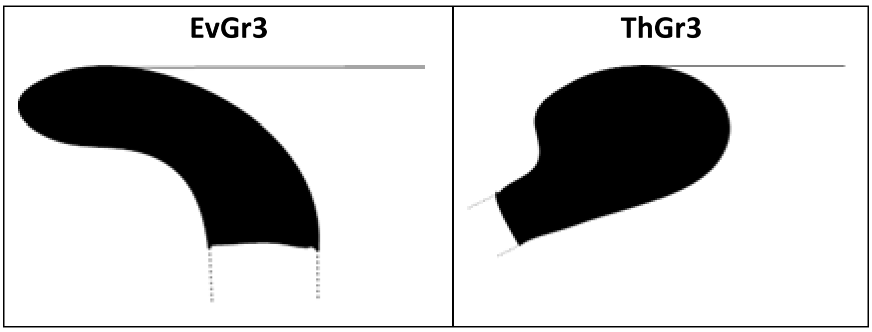


Figure 6. 38: individual rim forms present in high quantities at Bubeke 1

None of the rims from the trench at BBK 1 had a very small RD1 diameter (1-9cm). The majority were from small/medium RD3 sized vessels (14-18cm), and aside from this diameter category all other counts are too small for analysis. However the very large RD6 and RD7 rims (28-42cm) have been grouped to generate numbers large enough for a Chi Squared test to be performed. Results show that the higher quantities of RD3 sherds in the lower levels of the trench are not substantial enough to be considered a marker of age/depth, though very large RD6/RD7 rims are distinctive of upper levels and notably absent from older contexts. This matches general patterns defined in Chapter 6 part 3, which indicate that larger rim diameters appear to be younger in age.

The majority of the rim sherds (56%) fall into the very thin RT1 size category (0.1-1cm). Interestingly all 18 of the lower context rims have an RT1 thickness, whereas only two of the upper context rims have such a thin profile with the reminder measuring RT3-RT6 in thickness (1.4-2.9cm). A Chi Squared test on RT1 rims and RT5-RT7 rims as an agglomerated group indicates that thinner rims have a definite association with depth and thus age, whereas thicker rims are solely associated with the younger context.

Bubeke 1 Principal Components Analysis

A Principal Components Analysis was conducted on the excavated ceramics from Bubeke 1. As with the previous PCA conducted on the BKS 20 assemblage, each context (surface, 001, 002, and 003) was considered separately and compared to one another. Again, preliminary PCAs were first carried out on fabric attributes, decorative techniques, and rim attributes to determine which attributes contribute more than 15% of the variance between contexts, to qualify their inclusion in an overall PCA for BBK 1. In a consideration of rim sherd attributes only the surface context and context 002 contributed high enough sherd counts to be included in the analysis. From the results of the preliminary PCA, the following fabric and decorative attributes were included in the full PCA for BBK 1: coarse, medium and fine grained clays, quartz, hematite, feldspar, mica and grog inclusions/tempers, percentage of magnetic sherds, stylus, comb, and undecorated. It is worth noting that the positive and negative loadings for PC1 in the fabric attributes PCA, responsible for the greatest variance between contexts, are almost identical to the loadings for the fabric PC1 from BKS 20, with a positive loading of medium grained clays, mica and hematite inclusions and magnetism, and a high negative loading of fine grained clays and quartz and grog inclusions/tempers.

Rim sherd attributes occurring more than 1% of the time and in counts greater than 5 at BBK 1 included: jar and bowl vessel forms, EvGr3 and ThGr3 rim forms, RD3, RD6 and RD7 rim diameters, and RT1, RT4 and RT5 rim thicknesses. Figure 6.39 illustrates the attribute groupings derived from this preliminary PCA. Jars are strongly associated with EvGr3 rims, RD3 and RT1 diameters, and bowls are associated with ThGr3 rims, which directly overlap with RD6 and RD7 diameters, and RT4 thicknesses. Therefore in the full PCA only jars and bowls, and EvGr3 and ThGr3 rim forms will be included, as the direct association between RT1 and RD3 implies a presence wherever EvGr3 rims are strongly represented in subsequent analysis, and similarly any strong associations with ThGr3 rims will indicate an association of RD6, RD7 and RT4 attributes by-proxy.

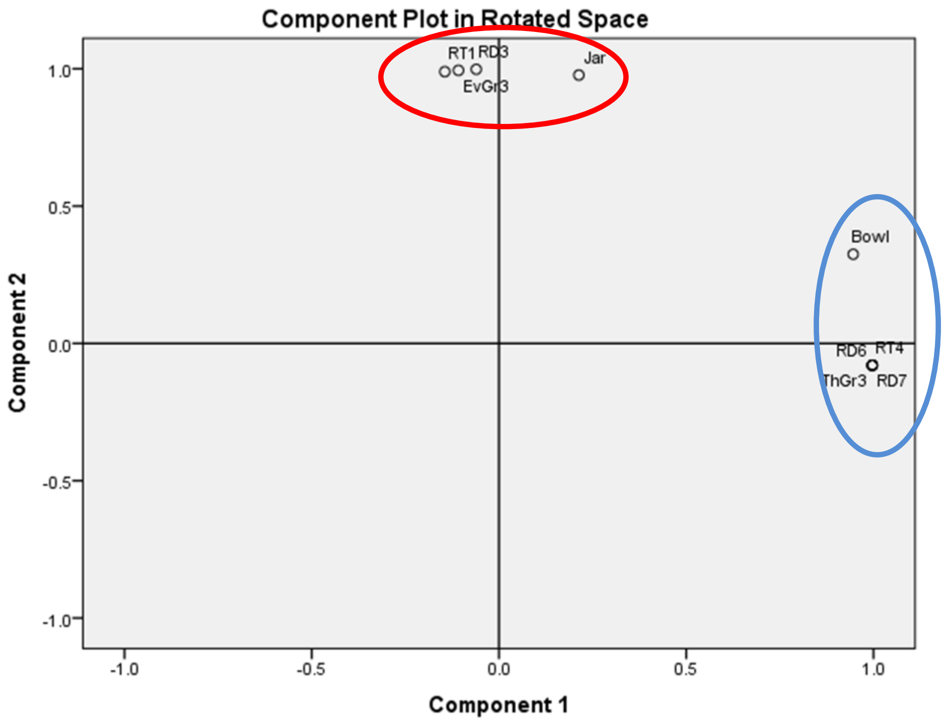


Figure 6. 39: Rim attributes from the preliminary PCA at Bubeke 1

The PCA for BBK 1, utilising all fabric, decorative, and rim attributes listed above, resulted in three Principal Components with PC1 contributing 53.502% of the variance between contexts, PC2 contributing 29.389% of the variance, and PC3 responsible for 17.109%. The component plot in Figure 6.40 indicates which attributes frequently appear in the same contexts together. Obvious clusters have been coloured accordingly. In one cluster fine grained clays, quartz and grog inclusions/tempers, Jar vessel forms, EvGr3 rims, and stylus decorations tend to occur in depth association with one another. In the second cluster there is an affinity between medium grained clays, hematite inclusions and magnetism, bowl vessel forms, ThGr3 rims, and KPR decorations. The distribution of coarse grained clays, mica and feldspar inclusions, comb decorations and absence of decoration is more scattered, though loosely associated with the left side of the diagram.

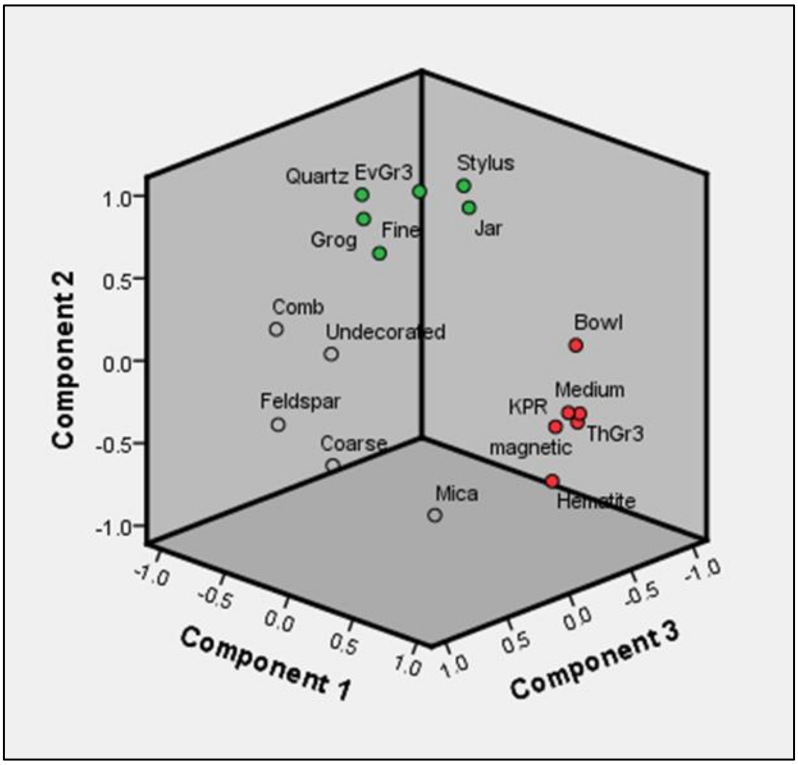


Figure 6. 40: Component Plot of attributes from BBK 1, with clusters of associated attributes coloured accordingly

These groupings are reflected in the Eigenvector loadings for the three components, listed in Table 6.11. PC1 exhibits a high positive loading of medium grained clays, hematite and mica inclusions, magnetism, ThGr3 rims and bowl forms, and KPR decorations, with a high negative loading of fine grained clays, grog tempers, and absence of decoration. PC2 has a high positive loading of grog and quartz inclusions/tempers, jars and EvGr3 rims, and stylus decorations, with a high negative loading of hematite and mica. Finally PC3 has no high negative loading, but a high positive loading of coarse grained clays, mica and feldspar inclusions, and comb decorations.

	Component		
	1	2	3
KPR	.990	-.138	
Medium	.989		-.122
ThGr3	.961	-.132	-.243
magnetic	.956	-.183	-.230
Undecorated	-.936	-.291	-.199
Bowl	.931	.274	-.242
Fine	-.834	.266	-.483
Hematite	.798	-.573	-.189
Grog	-.785	.540	-.304
EvGr3		.998	
Jar	.253	.964	
Stylus		.938	-.343
Quartz	-.419	.904	
Mica	.568	-.637	.521
Feldspar	-.238	-.189	.953
Coarse	.165	-.330	.930
Comb	-.322	.345	.881

Table 6. 11: Eigenvector loadings for each Principal Component from BBK 1 (values below .10 have been excluded from the table)

In the scatter plots for BBK 1 none of the four contexts fall very close together. For **PC1 Vs PC2** (Figure 6.41), the surface assemblage loads highly on the PC1 axis though close to zero on the PC2 axis, indicating a prevalence of medium grained clays, mica and hematite inclusions, magnetism, ThGr3 rims, bowls, and KPR decorations, with an absence of fine grained, grog tempered and undecorated sherds. The reverse pattern characterises context 002 with a high loading on the PC2 axis indicating an increased presence of quartz and grog tempers/inclusions, EvGr3 rims and jars, and stylus decorations, but an absence of hematite and mica inclusions. A slight negative loading on the PC1 axis additionally indicates a minor presence of fine grained clays and an absence of decoration. Both contexts 001 and 003 fall into the lower left quadrant of the graph, indicating a shared prevalence of mica and hematite inclusions, and a presence of fine grained clays, grog tempers, and absence of decoration, which appear in greater quantities in the stratigraphically deeper context 003 than in context 001.

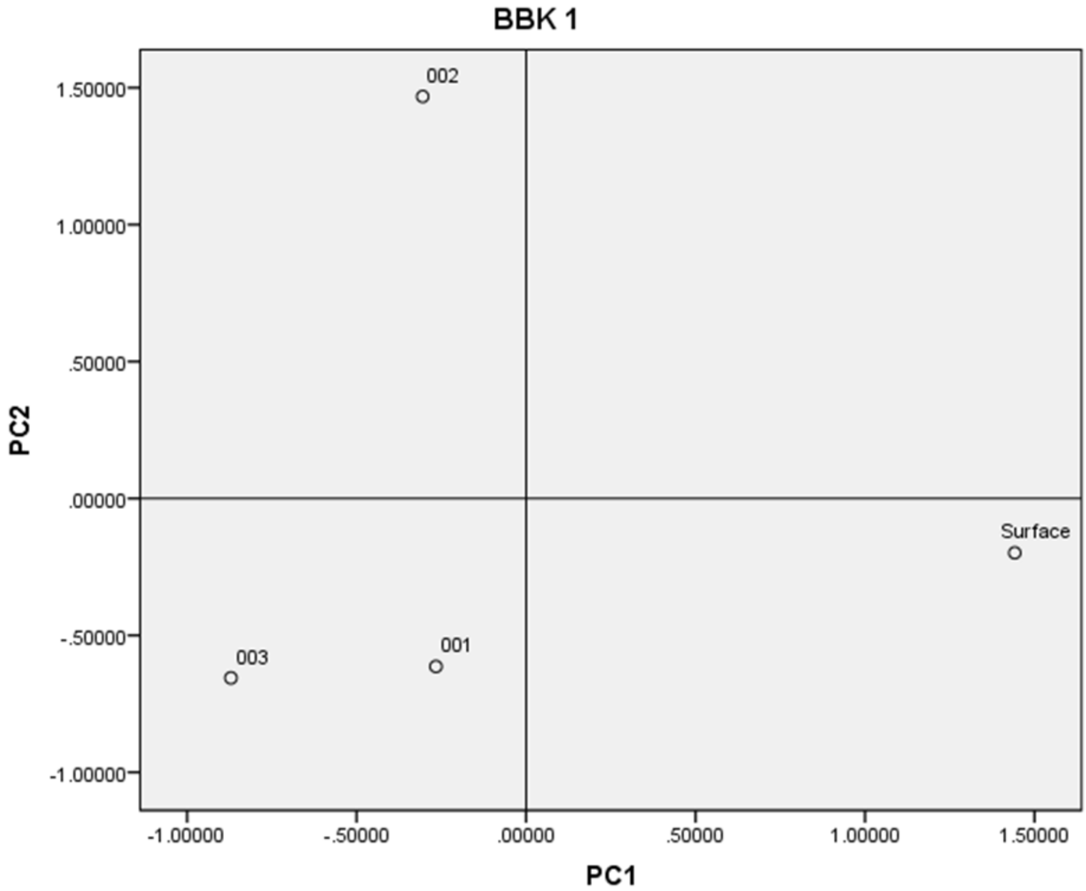


Figure 6. 41: Scatter plot of PC1 (+ loading of medium grained clays, hematite, mica, magnetism, ThGr3, bowls, KPR / - loading of fine grained clays, grog, undecorated) Vs PC2 (+ loading of grog, quartz, jars, EvGr3, stylus / - loading hematite, mica) for BBK 1

On the scatter plot for **PC1 Vs PC3** (not reproduced here), only context 003 has a high negative loading on the PC3 axis. With no high negative loadings of attributes on the component itself, this simply indicates an absence of the attributes with a high positive association with PC3, which includes coarse grained clays, feldspar and mica inclusions, and comb decorations. Alternately context 001 loads highly on the PC3 axis and is therefore associated with the aforementioned attributes. Both context 002 and the surface assemblage are largely unaffected by PC3.

Finally, the scatter plot for **PC2 Vs PC3** (not reproduced here) reiterates prior patterning. The assemblage from context 001 has a high positive load on PC3 and a negative load on the PC2 axis, indicating a presence of coarse grained clays, hematite, feldspar and mica inclusions, comb decorations, and an absence of grog and quartz inclusions/tempers and stylus decorations (only one rim was recovered from context 001 and hence the associations with PC2 and jars/EvGr3 rims are irrelevant). Context 002 loads highly on the PC2 axis (indicating a presence of grog and quartz inclusions/tempers, jars, EvGr3 rims and stylus decorations), but is unaffected by PC3. The surface assemblage falls into the lower left quadrant of the plot, but lies close to zero and thus is unaffected by attributes associated with both PC2 and PC3. Finally context 003 has a high negative loading on both axes, suggesting an association with hematite and mica, and an absence of coarse grained clays, feldspar and mica inclusions, and comb decorations.

In a summary of each context in order of stratigraphic depth, the surface assemblage can be characterised by a prevalence of medium grained clays, mica and hematite inclusions, magnetism, ThGr3 rims, bowls, and KPR decorations, with an absence of fine grained, grog tempered and undecorated sherds. Context 001 exhibits a presence of both fine grained and coarse grained clays, mica, hematite and feldspar inclusions with occasional appearances of grog tempers, comb decorations and a higher than average frequency of undecorated sherds, with a distinct lack of quartz inclusions and stylus decorations. The assemblage from context 002 is characterised by a minor presence of fine grained clays and undecorated sherds, with a high quantity of quartz and grog tempers/inclusions, EvGr3 rims and jar vessel forms, stylus decorations, and an absence of hematite and mica inclusions. Finally the deepest context (003) exhibits a prevalence of fine grained clays, grog tempers, absence of decoration, and some hematite inclusions, with an observable lack of coarse grained clays, feldspar, and comb decorations. Overall at BBK 1 grog tempers and fine grained clays increase with depth, jars and EvGr3 rims are more prevalent in the sub-surface layers whereas bowls and ThGr3 rims associate with the surface, and comb decorations appears in the upper sub-surface levels, whereas stylus decorated and undecorated sherds are more prevalent lower in the trench. The attributes closer to the surface in context 001 appear more mixed than lower in the trench (e.g. co-occurrence of both coarse grained and fine grained sherds), which may be either due to post depositional disturbances, evidenced by intrusive tree roots, or multiple manufacturing traditions utilising different clay grain sizes.

Bubeke 1 Ceramic Analysis Summary

Bubeke 1 is a shallow site, though the differences in attribute patterning between the upper and lower contexts shows a clear distinction of attributes associated with deeper/older ceramics and those associated with shallower/younger ceramics. Fine grained fabrics, grog tempers, and thin EvGr3 rims are indicative of the older contexts whereas coarse and medium grained fabrics, KPR decorations, magnetism, hematite and mica inclusions, thicker and wider rims and thickened ThGr3 rim profiles are traits of the younger ceramics. Furthermore, I previously argued it is dubious to associate temporal change with a total presence/absence of attributes; however at BBK 1 thickened rims are completely absent from the older deposits. The differences between the upper and lower layers of the trench suggest two different ceramic manufacturing processes which may be the result of new ideas/techniques entering the site over time.

In contrast site BKS 20 exhibited a more continual occupation with several gradual changes over time. This suggests that attribute patterning related to the specific stratigraphy of one site cannot be expected to exist identically in the stratigraphy of another site; the assumption of a universal change in ceramic patterns throughout the region is a shortcoming of the previous ceramic typologies in the region. Here we see that while BKS 20 and BBK 1 both have temporal patterning in their attributes, not all patterns between the sites are the same. Both assemblages indicate that fine grained clays, grog tempers, and a lack of magnetism are indicative of older ceramics, as is the absence of KPR, hematite and mica. At BBK 1 additionally older deposits have no thickened rims but contain EvGr3 rims with narrow rim thicknesses, whereas the older deposits at BKS 20 are decorated with comb, and additionally exhibit an absence of feldspar. These differences may represent micro-variation in ceramic styles of the older sites in the region, whereas common factors may signify ceramic traits of the older Sesse islands ceramic tradition as a whole.

6.2.3 Site Bubembe 3B Ceramic Analysis

Site BMB 3B was interesting for the presence of intricate punctate comb decorations in the surface assemblage which set it apart from surrounding sites, and for its proximity to a currently functioning traditional shrine dedicated to Mukasa, an important locale in the region's traditional cult practices (see Chapter 5 Figure 5.5 for a photograph of the shrine altar). The shrine is currently being cared for by two old ladies and their son, who acts as intermediary with the spirits at the shrine. They claim care of the shrine has always been held and inherited by the family through generations. The family were also among the few Sesse islanders who remained in the islands during evacuations related to the sleeping sickness epidemic in the early twentieth century (Fagan and Lofgren 1966a ; Posnansky et al. 2005). Local beliefs dictate that shrine locations are chosen by the spirits themselves, and that the temple adjacent to site BMB 3B has always been the main shrine to Mukasa for time immemorial. During my ethno-archaeological study of the traditional religious practices of Buganda I visited this same shrine several years earlier (though the two women were not present at the time), and the same information was communicated to me. However traditional spirit mediums on another island during this visit also claimed they were running the primary shrine to the same spirit Mukasa (see Amin 2007 for appearance of the Bubembe shrine at this time).

Slag was not present at BMB 3B with ceramics recorded as the only archaeological material present. Four sub-surface contexts were uncovered: 001 (disturbed top layer of the trench), 002 (main archaeological horizon), 003 (mixing of archaeological layer with underlying sterile soil), and 004 (sterile soil with very few intrusive sherds). No archaeological features were recorded within the trench. Table 6.12 shows the weight of the un-analysed sherds measuring less than 2x2cm in size and the percentage contribution this weight makes to each context; the number of fragmented sherds is not especially high and lies at the average levels for excavation contexts in this study. For the purposes of a statistical analysis the contexts were grouped into 'surface/001' as the disturbed upper layers of the trench and '002/003/004' as the horizon of archaeological activity.

Context	Analysed Sherd Count	Weight (G) of sherds < 2x2cm	Percentage Contribution of sherds < 2x2cm
001	80	40	14.23
002	137	890	26.49
003	24	100	8.40
004	4	40	40.00

Table 6. 12: counts of analysed sherds and weights of un-analysed fragmented sherds from sub-surface contexts at Bubembe 3B. Context aggregates are highlighted with a red border and shaded according to groupings

Bubembe 3B Fabric Attributes

Within both contextual groups the observed frequencies of coarse and medium grained sherds met the expected values. Fine grained sherds numbered slightly below the expected values in the upper layers and were over-represented in lower layers, though differences were not great enough to delimit fine grained clays as a temporally diagnostic trait.

Amongst the mineral inclusions recorded, counts of feldspar, limestone/shell and rose quartz featured too rarely for significance testing. Quartz and mica both occurred very frequently within the BMB 3B ceramics, hematite slightly less often, and grog inclusions were present but infrequent. In terms of the expected values hematite and mica feature more frequently than expected in the upper contexts whilst grog and quartz appear in lower counts than expected; the opposite pattern pervades the lower layers. A Chi Squared test confirms that lower level ceramics contain a distinctively high amount of grog and quartz, whereas hematite is a trait of upper level ceramics. The difference in the mica content between the two assemblages emerges as negligible. The change in presence of grog is the only attribute to have an uninterrupted incline throughout the sub-surface layers of the trench from 001 to 003, and this is illustrated graphically in Figure 6.42, with a supporting P-value of 0.00041 from a significance test on the regression line (context 004 has been excluded from the graph due to low sherd counts skewing the percentage data).

Less than 5% of the sherds at BMB 3B were magnetic, which is far below the regional survey average of 23.41% and the excavated sites average of 17.38%. The upper contexts contained slightly more magnetic sherds than expected and the lower contexts slightly less, though the difference in levels of magnetic sherds was not strong enough to be considered an indicator of age. Bubembe is the westernmost island in this field study, and adjacent to both Bugala Island and Funve Island, which exhibit a mixed geology of the sandstone typical of the Sesse Islands, and the 'Buganda Group' geology prevalent on the north-western lakeshore, characterised by slate, phyllite, mica schist, and metasandstone (see Chapter 1 Figure 1.3). Furthermore, this western part of the archipelago lies on the juncture between the area with a high magnetic signature, and the area with a low magnetic signature (see Figure 6.11). Therefore the frequent appearance of mica and the low magnetic signature of the ceramics may both be reflective of the geographical positioning of Bubembe Island itself, due to the locally accessible geologies.

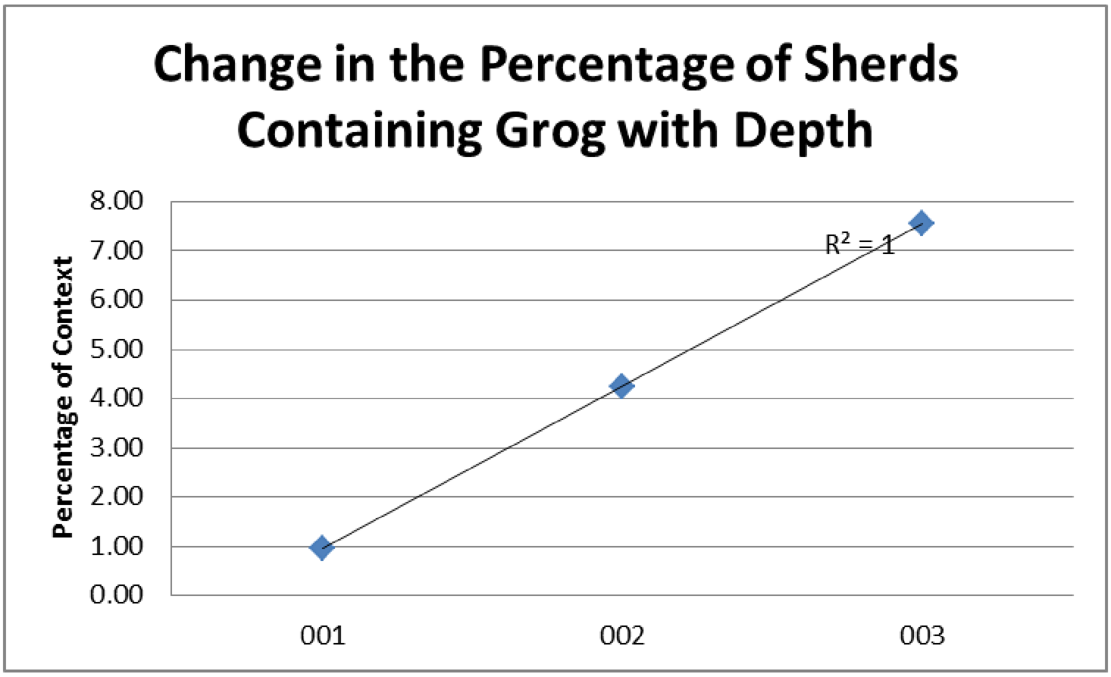


Figure 6. 42: graph of the change in percentage of grog tempered sherds within each context at Bubembe 3B (n = 21)

Bubembe 3B Decorative Techniques

Nine different decorative techniques were recorded at BMB 3B, though only KPR and stylus (and an absence of decoration) featured in high enough levels for Chi Squared testing. The results of this testing on the undecorated, KPR, and stylus decorations, and all other rarer decorations as an amalgamated group indicates that a greater number of undecorated sherds correlate with deeper/older contexts. This is illustrated in Figure 6.43, and supported by a significance test on the regression line which produced a P-value of 0.002, thus indicating a link between depth and the percentage of undecorated sherds within the assemblage. KPR and stylus were both associated with the upper layer of the trench, as was a wider range of variation in the less frequent decorative techniques.

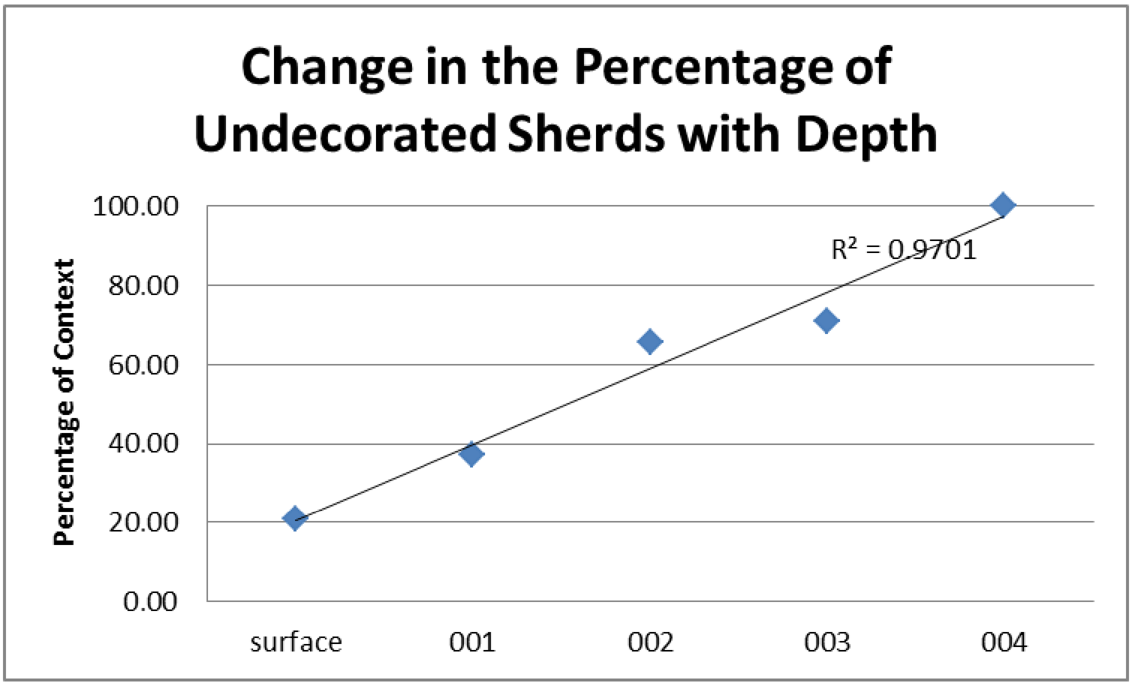


Figure 6. 43: graph of the change in percentage of undecorated sherds with depth at BMB 3B (n = 155)

In this case a lack of decoration is the clearest indicator of age (based on depth). Ironically, while KPR and stylus have been considered as temporally distinct in previous regional typologies, they are both associated in the upper layers of this trench. Not far from this site there is a sherd from the survey collection with KPR decoration (previously considered diagnostic of the late iron age) on the exterior, and cross hatched stylus decoration on the interior (previously considered diagnostic of the transitional or earlier periods; see Chapter 2 for an examination of these typologies and Chapter 8 for a discussion on co-occurrence of different decorative techniques on Sesse Islands ceramics). While ceramicists using the older typologies may argue that the presence of both stylus and KPR decorations denotes a crossover of styles at the end of the transitional period, I believe my results indicate the differentiation between stylus decorations from the EIA and from the transitional periods is wholly subjective and based on what the researcher considers as a ‘refined/skilled’ application and ‘unrefined/unskilled’ (Ashley 2005), which is not a very useful distinction. This is why we need to look for other ways to define earlier and later ceramics which does not rely on presence/absence of a single attribute (see Chapter 3 for a full critique).

Bubembe 3B Rim Sherd Attributes

Rim sherd counts at BMB 3B are only numerous enough for testing in the ‘jar’ and ‘bowl’ vessel categories, with only one occurrence of a collared jar rim and three of an open-collared bowl rim. However in both context groups the observed quantities of jars and bowls matched the expected numbers giving no depth patterning. Again for individual rim forms the expected values are too low for statistical testing. As amalgamated manufacturing groups (everted, thickened and simple), expected values of everted and thickened rims match the observed and simple rims were not numerous enough for testing.

Counts within the rim diameter category show that surface sherds only occur in sizes of RD4 (19-23cm) and larger, whereas the archaeological horizon only features rims in sizes RD4 and smaller, though numbers were again too low for statistical testing. Therefore rim diameter categories have been grouped as small to medium (RD1-RD3/1-18cm), medium to large (RD4 and RD5/19-27cm) and large to very large (RD6 and RD7/28-42cm). However despite there being a greater than expected frequency of small to medium vessels in the deeper contexts and large to very large in the younger contexts, these patterns were not strong enough for an association between vessel diameter and depth/age to be established. With rim thickness counts a similar problem of low numbers within each rim thickness category was encountered and again sherds were grouped as thin (RT1 and RT2/0.1-1.3cm), medium thickness (RT3 to RT5/1.4-2.2cm), and thick to very thick (RT6 and RT7/2.3-4.0cm). However within these groups rim thickness in both upper and lower contexts occurred at expected levels.

Bubembe 3B Principal Components Analysis

A Principal Components Analysis was conducted on the excavated ceramics from individual contexts at Bubembe 3B. Context 004 was excluded from this analysis as only four sherds were derived from this basal context. Preliminary PCAs were first carried out on fabric attributes, decorative techniques, and rim attributes to determine which attributes contribute more than 15% of the variance between contexts, to qualify their inclusion in an overall PCA for BMB 3B. In a consideration of rim sherd attributes only the surface context and contexts 001 and 002 contributed high enough sherd counts to be included in the analysis. The preliminary PCA highlighted the following fabric and decorative attributes at BMB 3B to be included in the full PCA: coarse, medium and fine grained clays, quartz, hematite, mica, and grog inclusions/tempers, and magnetism, KPR, CWR, TGR, Cord Wrapped Paddle (CWP), stylus, and undecorated. Based on visual rim attribute clustering on a three-dimensional component plot, the following attributes were included in the full analysis: EvGr2 rims (with by-proxy associations with RD4, RT2 and RT3), EvGr4 rims (with by-proxy associations with RT5 rims), ThGr3 rims, RD3 diameters, and RT1 rims (with by-proxy associations to RD2 rims).

The full PCA for BMB 3B resulted in three Principal Components with PC1 contributing 54.627% of the variance between contexts, PC2 contributing 28.013% of the variance, and PC3 responsible for 17.359%. The component plot in Figure 6.44 indicates which attributes frequently appear in the same contexts together. Fine grained clays appear to co-occur contextually alongside grog, CWR decorated sherds and undecorated sherds, quartz inclusions, and EvGr2 rims (coloured red on Figure

6.44). Sherds constructed from medium grained clays have a depth-association with CWP and TGR decorations, magnetism, and EvGr4 rims (coloured green in Figure 6.44). Finally hematite and mica inclusions correlate with stylus and KPR decorations, and ThGr3 and RT1 rims (coloured blue). Coarse grained clays (uncoloured) may be close enough to be associated with this final group. RD3 rim do not appear to correlate with any group on the plot.

Table 6.13 indicates the Eigenvector loadings for the three components. PC1 exhibits a high positive loading of mica inclusions, stylus and KPR decorations, ThGr3 and RT1 rims, and a high negative loading of fine grained clays, quartz and grog inclusions/tempers, CWR decorations and undecorated sherds. PC2 has a high positive loading of medium grained clays, magnetism, CWP and TGR decorations, EvGr4 and ThGr3 rims, with a high negative loading of coarse grained clays, RD3 rims, and undecorated sherds. Finally PC3 has a high positive loading of EvGr2 rims, medium grained clays, RD3 rims, and a high negative loading of coarse grained clays and hematite.

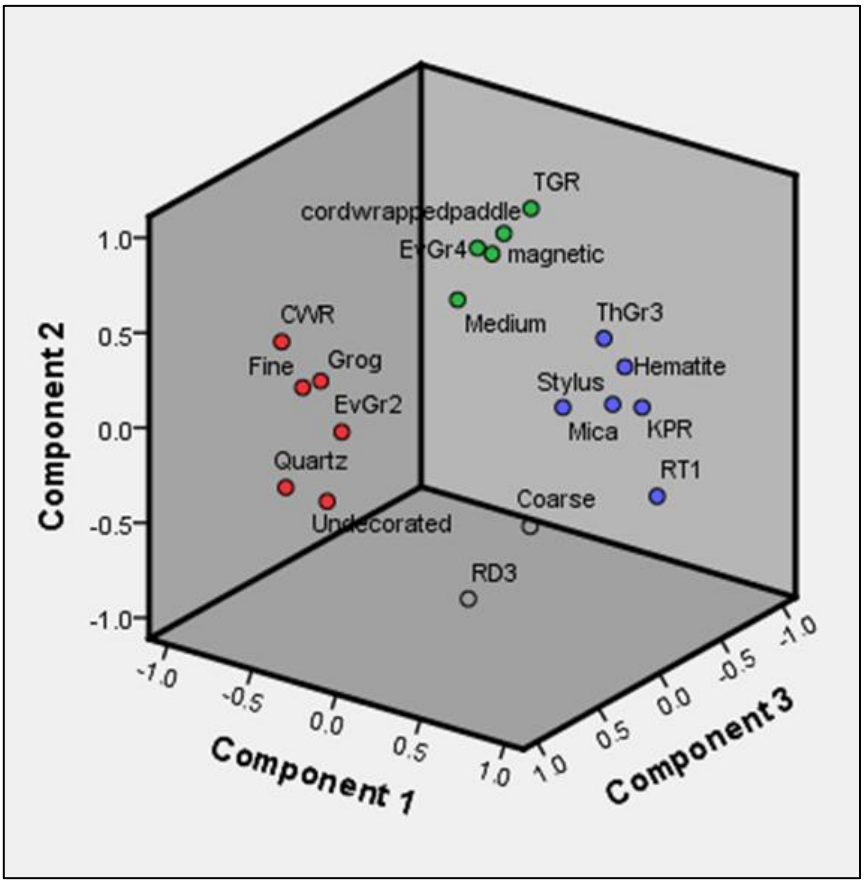


Figure 6. 44: Component Plot of attributes from BMB 3B, with clusters of associated attributes coloured accordingly

	Component		
	1	2	3
Fine	-.989	-.148	
Grog	-.981	-.161	-.112
KPR	.971	.234	
CWR	-.952	.183	.246
Stylus	.939	.311	.145
RT1	.910	-.325	-.257
Mica	.836	.364	.410
ThGr3	.809	.586	
Undecorated	-.753	-.641	.148
Quartz	-.750	-.444	.490
cord wrapped paddle	.208	.978	
EvGr4	.184	.960	.210
magnetic	.261	.945	.197
TGR		.912	-.406
Coarse		-.838	-.543
Medium	.279	.818	.503
RD3	.412	-.686	.599
EvGr2		.203	.977
Hematite	.196		-.976

Table 6. 13: Eigenvector loadings for each Principal Component from BMB 3B (values below .10 have been excluded from the table)

Scatter plots were created to compare the association between the ceramic assemblages from each context with each principal component. Figure 6.45 illustrates **PC1 Vs PC2.** On none of the scatter plots do of the contexts indicate a close association in their ceramic assemblages. On this initial plot we can see that the surface assemblage has a high positive loading on the PC2 axis, indicating a prevalence of medium grained clays, magnetism, CWP and TGR decorations, EvGr4 and ThGr3 rims, with a position close to zero on the PC1 axis indicating little influence from the associated attributes. The high positive loading of context 001 on the PC1 axis indicates a presence of mica inclusions, stylus and KPR decorations, ThGr3 and RT1 rims, and the high negative loading on PC2 reflects coarse grained clays, RD3 rims, and undecorated sherds. Context 002 is little affected by the attributes associated with PC1, though the high negative loading on PC2 suggests an assemblage high in coarse grained clays, RD3 rims, and undecorated sherds. Context 003 is little influenced by the

PC2 attributes, but bears a high negative loading on PC1, indicative of fine grained clays, quartz and grog inclusions/tempers, CWR decorations and undecorated sherds.

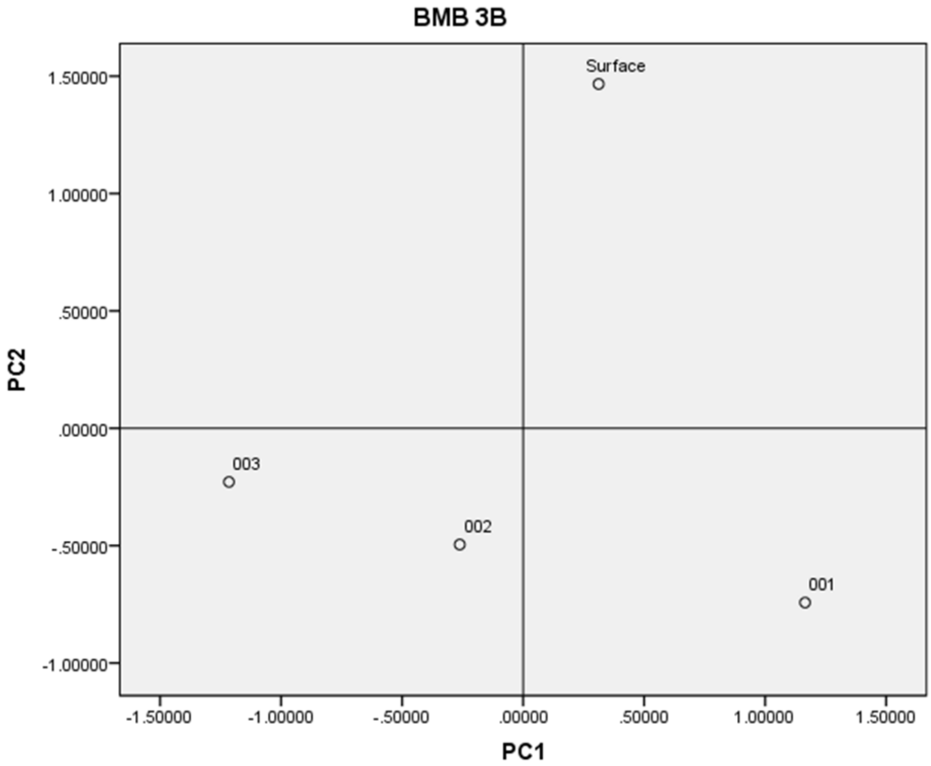


Figure 6. 45: Scatter plot of PC1 (+ loading of mica, stylus, KPR, ThGr3, RT1 rims / - loading of fine grained clays, grog, quartz, undecorated, CWR) Vs PC2 (+ loading of medium grained clays, magnetism, CWP, TGR, EvGr4, ThGr3 / - loading coarse grained clays, RD3, undecorated) for BMB 3B

The scatter plot for **PC1 Vs PC3** (not reproduced here) indicates that the surface assemblage is little influenced by either component. The positive loading of context 001 on axis PC1 has been noted in previous paragraphs. Context 001 loads negatively on PC3, indicating a presence of coarse grained clays and hematite. Context 002 remains unaffected by PC1, though bears a high positive loading on PC3, indicating a presence of EvGr2 rims, medium grained clays, and RD3 rims. Alongside the aforementioned negative loading on PC1, the assemblage from context 003 also loads negatively on PC3, suggesting a presence of coarse grained clays and hematite.

On the plot for **PC2 Vs PC3** (not reproduced here), few new associations emerge. Both contexts 001 and 003 load negatively on PC2 and PC3, indicating a presence of coarse grained clays, hematite inclusions, RD3 rims, and undecorated sherds. The surface assemblage is unaffected by PC3 with a high positive loading on PC2 which has previously been noted. Context 002 exhibits a high positive loading on PC3 and a negative loading on PC2, both of which have been discussed above.

In summary, the surface assemblage can be characterised by the presence of medium grained clays, magnetism, CWP and TGR decorations, and EvGr4 and ThGr3 rims. Context 001 associates with coarse grained clays, mica and hematite inclusions, stylus and KPR decorations, undecorated sherds, ThGr3, RT1 and RD3 rims. The assemblage from Context 002 features coarse grained and medium grained clays, undecorated sherds, EvGr2 and RD3 rims. Finally context 003 features some coarse grained clays and hematite, but can be considered noteworthy as the only context associated with fine grained clays, quartz and grog inclusions/tempers, and CWR decorations. While the upper contexts are more mixed in their attribute patterning (which may be the result of post depositional mixing), there is again an association between fine grained clays and grog tempers with depth, which has been observed at both BKS 20 and BBK 1.

Bubembe 3B Ceramic Analysis Summary

The ceramic assemblage from BMB 3B appears largely homogenous in the upper contexts with little difference in fabric coarseness, rim form, vessel size or rim thickness over time, though an increase of fine grained clays in the stratigraphically deepest context (003) emerges in the PCA. There is some difference in decorative techniques applied to ceramics in older and younger layers, though this does not match assumptions from past research of how decorative styles change with age, with a co-occurrence of stylus and KPR decorations within the excavated contexts of the trench. However despite the homogeneity of the site indicating a single span of continuous occupation with a slight increase in incidence of decoration in later years, the mineral/ grog inclusion data does offer definitive patterns reflective of change over time, namely an increase in percentages of grog tempers with depth. This supports an argument that fabric paste compositions are a more appropriate temporal indicator than decorative technique, as even in an overwhelmingly homogenous site as here changes in inclusion quantities provide a finer resolution of ceramic change through time. According to Gosselain (1992; 2000), whilst decorative techniques are ever changeable, sourcing and mixing of fabrics and vessel forming are techniques only learnt from existing potters through apprenticeship. The change in inclusion types and choices made in fabric mixing may reflect introduction of a new potting tradition with different notions of what constitutes an appropriate and workable clay mixture. The vessel forming techniques here in the BMB 3B assemblage do not illustrate change, though jars and bowls are both generic vessel forms which exist throughout the Lake Victoria basin both spatially and temporally. Rim forms are more akin to stylistic change than shifts in vessel form, though the ceramic data at BMB 3B is inadequate in quantity to determine whether there is any change in rim forming techniques over time.

6.2.4 Site Bubembe 9 Ceramic Analysis

Site BMB 9 produced no archaeological materials other than ceramics. Three sub surface contexts were differentiated: 001 (disturbed upper layer of trench), 002 and 003. Although context 001 was located at the top of the trench immediately below the topsoil and contained intrusive modern glass and ceramics, this was also the main archaeological horizon containing 84% of all sub-surface pottery. In contrast layer 002 only contained 12 sherds and 003 contained seven sherds (see Table 6.14), both of which appear to be the result of post depositional mixing of the shallow archaeological layer with the underlying sterile horizon. A large 1.5kg of fragmented sherds measuring under 2x2cm in size emerged from context 001, contributing 39.27% of the overall context weight (see Table 6.14). Whilst at other excavation sites the uppermost context has been grouped with the surface remains for purposes of statistical analysis, here the uppermost sub-surface context is the main archaeological horizon. Despite the intrusion of modern glass and ceramics in layer 001, ceramic attribute percentages are quite distinct from the surface assemblage and therefore the site will be analysed as surface, 001 (main archaeological horizon), and 002/003 (to examine whether the lowest layers match or differ from the main archaeological horizon).

Context	Analysed Sherd Count	Weight (G) sherds < 2x2cm	Percentage of sherds < 2x2cm
001	101	1500	39.27
002	12	50	23.81
003	7	10	12.5

Table 6. 14: Analysed sherd count and weight of unanalysed fragmented sherds from sub-surface contexts at Bubembe 9. Context aggregates are highlighted in red and shaded accordingly

Bubembe 9 Fabric Attributes

The results of a Chi Squared test on fabric coarseness indicate that while surface ceramics have a strong association with medium grained fabrics which are lacking lower in the trench, the main archaeological horizon (context 001) associates with coarse grained ceramics. Lower trench layers (002/003) also have higher than expected frequencies of coarse grained sherds suggesting they derive from the same archaeological deposit as the sherds in context 001, though quantities in these lower levels are not large enough to be considered statistically diagnostic of the context.

Amongst the mineral inclusions and tempers feldspar, grog, rose quartz and limestone/shell occurred too infrequently for statistical testing. Apart from a slightly higher than expected frequency of hematite in the surface ceramics and a lower than expected appearance in context 001, all frequencies of quartz, mica, and hematite elsewhere were at expected levels. The slight differences in levels of hematite within the trench were not substantial enough to be considered indicative of any temporal patterning.

Relatively few (12%) of the ceramics from BMB 9 were magnetic, which is below the average of 17.38% for excavated sites, and as with site BMB 3B this may reflect the geographical position of Bubembe in the sector of the archipelago with a naturally low magnetic signature. In the survey ceramic analysis magnetism demonstrated a correlation with distance east, supporting the association between levels of magnetism in pottery, and site location in relation to the naturally high and low bands of magnetic signatures around the lake basin. In the surface collection at

BMB 9 the frequency of magnetic sherds is slightly higher than expected but numbers are too low for a Chi Squared test to be performed. Elsewhere within the trench the observed quantities of magnetic sherds match the expected values.

Bubembe 9 Decorative Techniques

Only five different decorative techniques were recorded at BMB 9, giving the site the lowest variety of ceramic decoration compared to all other excavated sites (the average number of decorative techniques per site is 7-8). Only KPR and stylus decorations featured in high enough quantities for significance testing. From the observed and expected frequencies the surface collection has slightly lower than expected counts of undecorated sherds whereas context 001 has more undecorated sherds than expected, and the lowest levels have high incidences of KPR decoration. All other decorative techniques occur either at the expected levels or in numbers too small for any comment to be made. However from these fluctuations in counts of different decorative techniques the only indicator of depth supported by the Chi Squared test is a high frequency and range of the rarer decorative techniques on the surface (grass, TGR, CWP), with less variation in decorative techniques below the surface.

Bubembe 9 Rim Sherd Attributes

With only five rim sherds in the surface assemblage and a single one from contexts 002/003, rims were almost exclusively recovered from the main archaeological horizon of context 001. Consequently rim sherds were grouped into the surface context and sub-surface contexts (001/002/003), though with all expected values on the surface for each vessel form, rim form, rim diameter and rim thickness groups below a count of 5 no statistical tests could be carried out on the association between rim sherd attributes and depth. In terms of vessel form in the sub-surface contexts there were twice as many jars as bowls. Only one open-collared bowl was present at the site and this was located within the surface assemblage. A small range of five different everted rim forms, one thickened rim form and one simple rim form were present below the surface, with everted rims as a manufacturing group dominating the archaeological horizon. The most common individual everted rim form in the sub-surface levels was EvGr2 (see Figure 6.46), a flared and externally thickened rim form. All vessels in the archaeological layer had a medium to large rim diameter between RD3 to RD5 in size (14-27cm), and a wide range of small to large RT1 to RT5 rim thicknesses (0.1-2.2cm).

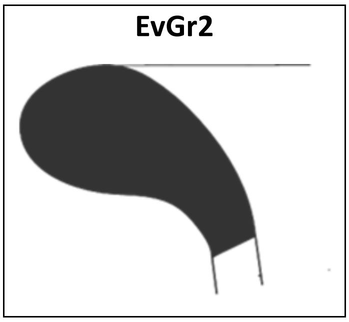


Figure 6. 46: The most common rim form in the archaeological deposits at Bubembe 9

Bubembe 9 Principal Components Analysis

A Principal Components Analysis was conducted on the excavated ceramics from individual contexts at Bubembe 9 (surface/001/002/003). Preliminary PCAs were first carried out on fabric attributes and decorative techniques to determine which attributes contribute more than 15% of the variance between contexts. Rim attributes were not analysed due to low counts; only 5 rim sherds were recorded on the surface, 12 in context 001, and a single rim sherd was found in contexts below 001. Therefore a PCA of rim sherd attributes would not reveal any change between contexts as almost all rim sherds are derived from a single context. The preliminary PCA identified the following attributes for the full PCA on the BMB 9 assemblage: coarse and medium grained clays, quartz, hematite, feldspar, mica, rose quartz and grog inclusions/tempers, magnetism, KPR, TGR, CWP, stylus, and undecorated.

The full PCA for BMB 9 resulted in three Principal Components with PC1 contributing 50.231% of the variance between contexts, PC2 contributing 30.710% of the variance, and PC3 responsible for 19.059%. The component plot in Figure 6.47 indicates which attributes frequently appear in the same contexts together. One cluster of attributes frequently found in association includes medium grained clays, mica inclusions, magnetism, and TGR, stylus, and CWP decorations (coloured red in Figure 6.47). Sherds constructed from coarse grained clays are recovered in association with rose quartz inclusions and KPR decorations (coloured blue), and undecorated sherds often occur alongside hematite inclusions (coloured green). Quartz, feldspar and grog inclusions/tempers are more dispersed and less strongly associated with any single attribute cluster.

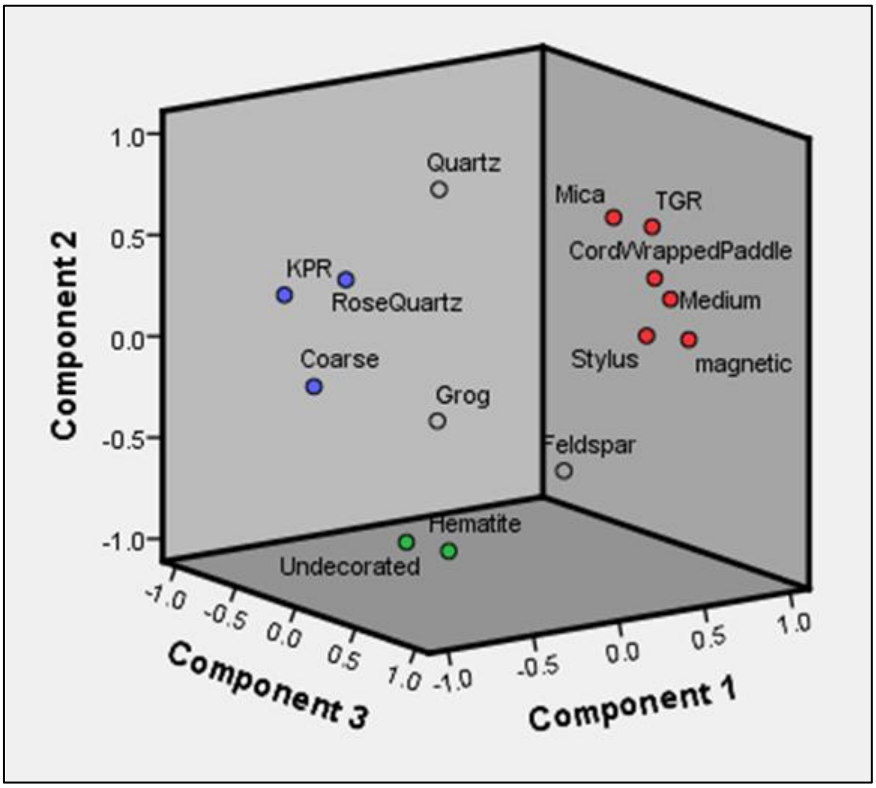


Figure 6. 47: Component Plot of attributes from BMB 9, with clusters of associated attributes coloured accordingly

Table 6.15 indicates the Eigenvector loadings for the three components. PC1 is reflective of the red group in Figure 6.47 and thus exhibits a high positive loading of medium grained clays, feldspar inclusions, magnetism, CWP and TGR decorations, and a high negative loading of coarse grained clays and KPR decorations. PC2 has a high positive loading of quartz and mica inclusions and TGR decorations, with a high negative loading of hematite, feldspar and grog inclusions/tempers and undecorated sherds. Finally PC3 has a high positive loading of stylus decorations and mica inclusions, and a high negative loading of KPR decorations, rose quartz and grog inclusions/tempers.

	Component		
	1	2	3
Coarse	-.999		
Medium	.980	.141	.143
Cord Wrapped Paddle	.976	.218	
magnetic	.932		.363
KPR	-.745	.252	-.617
TGR	.660	.605	.445
Quartz	-.410	.891	.194
Hematite	-.391	-.886	.249
Undecorated	-.489	-.871	
Feldspar	.629	-.737	-.247
Mica	.326	.730	.600
Rose Quartz	-.134	.167	-.977
Stylus	.287	.220	.932
Grog	.270	-.550	-.790

Table 6. 15: Eigenvector loadings for each Principal Component from BMB 9 (values below .10 have been excluded from the table)

Figure 6.48 illustrates the scatter plot of **PC1 Vs PC2**. The Surface assemblage loads highly on the PC1 axis, indicating a presence of medium grained clays, feldspar inclusions, magnetism, CWP and TGR decorations. There is also slight positive loading on the PC2 axis, though the eigenvalue of this loading is below .5, indicating a minor appearance of quartz and mica inclusions and TGR decorations in the surface assemblage. The assemblages from 001 and 003 are closely situated on this scatter plot, with a high negative loading on the PC2 axis, and a negative loading (though with an eigenvalue below .5) on the PC1 axis, indicating a high presence of hematite, feldspar and grog inclusions/tempers and undecorated sherds, and a less common appearance of coarse grained clays and KPR decorations. The assemblage from context 002 differs with a high negative loading on PC1, indicating coarse grained clays and KPR decorations, and a high positive loading on PC2, implying a presence of quartz and mica inclusions and TGR decorations.

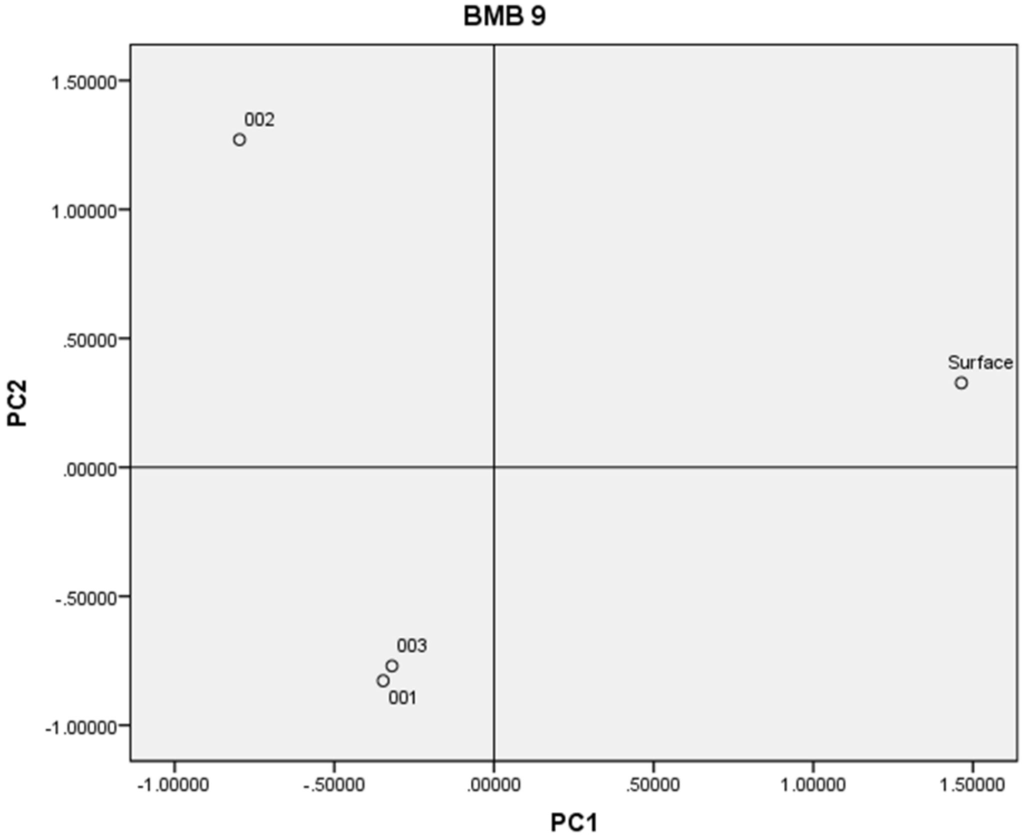


Figure 6. 48: Scatter plot of PC1 (+ loading of medium grained clays, feldspar, magnetism, CWP, TGR / - loading of coarse grained clays, KPR) Vs PC2 (+ loading of quartz, mica, TGR decorations / - loading hematite, feldspar, grog) for BMB 9

On the scatter plot for **PC1 Vs PC3** (not reproduced here), the surface assemblage maintains a high positive loading on the PC1 axis and the assemblage from context 002 maintains its high negative loading on the PC1 axis, with neither affected by PC3, due to their positioning at zero on the PC3 axis. While contexts 001 and 003 share a similar slightly negative loading on the PC1 axis, they lay at polar opposites on the PC3 axis. Context 001 exhibits a high positive loading, indicative of stylus decorations and mica inclusions, and the reverse is true for context 003, with a high negative loading on PC3 implying an enhanced presence of KPR decorations, rose quartz and grog inclusions/tempers in the associated ceramics. The scatter plot for **PC2 Vs PC3** simply reiterates the patterns described above.

In summary, the surface assemblage can be characterised by the presence of medium grained clays, feldspar, quartz and mica inclusions, magnetism, CWP and TGR decorations. This matches the attribute patterning from the other excavated Sesse

Islands sites, which suggests that medium grained clays, magnetism, and roulette decorative techniques (specifically CWP) are younger and more often associated with surface/upper sub-surface assemblages. The ceramics from context 001 feature a high presence of hematite, feldspar, mica, and grog inclusions/tempers, stylus decorated and undecorated sherds, and a lower frequency of coarse grained clays and KPR decorations. Context 002 is characterised by a high frequency of coarse grained clays, quartz and mica inclusions, KPR and TGR decorations. Finally the deepest context of the trench, 003, is characterised by hematite, feldspar, rose quartz, and grog inclusions/tempers, with a less frequent appearance of coarse grained clays and KPR decorations. While the mixing of attributes is apparent throughout the trench, with a variety of inclusions and decorative techniques throughout the contexts which may be the result of post depositional processes or a range of ceramic manufacturing techniques being carried out contemporaneously at the site, there is some increase of grog in the lowest context 003, which correlates with patterns observed in the deeper levels of BKS 20, BBK 1, and BMB 3B.

Bubembe 9 Ceramic Analysis Summary

In conclusion the mixed range of attributes exhibiting little depth patterning at BMB 9 may either be indicative of a single occupation, or the result of post depositional mixing of artefacts masking the change in ceramic manufacturing processes over time. The only fabric difference between the surface and sub-surface ceramics at Bubembe 9 is a presence of medium grained fabrics in the surface collections, which are supplanted by coarse grained fabrics below ground, and the presence of CWP decorations on the surface, which are not recovered in the subterranean layers. Fine grained fabrics do not feature in the trench. Both surface and sub-surface ceramics feature a mineral inclusion combination of quartz, mica and hematite, which are generally common throughout other assemblages in the Sesse Islands and likely to be derivative from the local sandstone geology with influence from the nearby Buganda geological group found on Funve island immediately to the south of Bubembe, and Bugala Island immediately to the west, characterised by slate, phyllite, mica schist, and metasandstone. Levels of hematite increase slightly in the surface ceramics, though not enough for a distinction to be made between the surface and sub-surface collections. Grog inclusions, which previously have been associated with older contexts at BKS 20, BBK 1 and BMB 3B, do associate with the deepest context of the trench in the PCA, despite the absence of fine grained clays. Decoratively, KPR and stylus are found throughout the trench, though the surface ceramics exhibit a greater range of decorative diversity with the appearance of grass, TGR and CWP ceramics, though in numbers too low for them to be associated with the BMB 9 ceramic manufacturing traditions. Rim sherds are too few throughout the trench for any patterning in vessel form to be sought.

Therefore it appears the ceramic tradition at BMB 9 is characterised by coarse grained ceramics containing quartz, hematite and mica, decorated with both KPR and stylus decorations. The earliest ceramics may have been constructed with grog tempers, and though the appearance of grog is limited, it remains associated with the oldest context. The presence of medium grained ceramics on the surface with the same mineral inclusions and decorative techniques suggests a minor shift later in the BMB 9 tradition to a new clay source, or a change in the sorting of the clay. This is likely to be due to exhaustion of older clay sources rather than a change in manufacturing tradition as the mineral composition of the inclusions remains unaltered, and the decorative techniques do not change. An appearance of other decorative techniques in very low numbers is likely the result of minor trade, as the techniques are rare and not adopted into the otherwise homogenous BMB 9 manufacturing tradition.

6.2.5 Site Bukasa 2 Ceramic Analysis

Site BKS 2 had a large surface assemblage containing a large proportion of rim sherds, though a complete absence of any other archaeological material. Below the surface all ceramics in the uppermost context 001 were too fragmented for analysis (see Table 6.16). Context 002 contained some sherds, though the context was disturbed by an intrusive shallow cut (context 003) which contained no ceramics but some modern waste, with both context 002 and 003 subsequently overlain by context

001 (see Chapter 5 Figures 5.18 and 5.19 for trench plans and section drawings indicating this cut). Context 004 appeared to be the main archaeological horizon, containing the greatest number of sherds and an extremely high weight of fragmented sherds compared to other fieldwork sites (see Table 6.16). With only 3 pieces of ceramic, context 005 represents the sterile soil below the archaeological horizon with occasional intrusive sherds from the preceding context. For the purposes of a statistical analysis deposits from the surface to context 002 were grouped as context 002 has evidently been disturbed and mixed with surface remains in the recent past. Contexts 004 and 005 were amalgamated as the main horizon of archaeological activity.

Context	Analysed Sherd Count	Weight (G) of sherds < 2x2cm	percentage of sherds < 2x2cm
001	0	40	100
002	30	920	48.68
004	113	2300	55.29
005	3	40	40.00

Table 6. 16: analysed sherd count and weight of fragmented sherds considered too small for analysis in sub-surface contexts at Bukasa 2. Context aggregates are delineated in red and shaded according to groupings

Bukasa 2 Fabric Analysis

Fine grained ceramics were rare, contributing less than 2% to the overall sherd count for the site. Coarse grained ceramic frequencies were slightly lower than expected and medium grained ceramics more numerous than expected in the upper surface levels of the trench. The opposite pattern existed within the lower archaeological ceramic assemblage. Results of a Chi Squared test indicate that coarse grained ceramics do increase in quantity with depth while medium grained ceramics decrease. This is at odds with the results from other sites (BBK 1 and BKS 20), which suggests site BKS 2 may be younger in age as the well stratified remains from BKS 20 suggest a longer sequence of occupation. Collections from BMB 9 exhibit the same pattern with an increase of coarse grained sherds below the surface and an abundance of medium grained sherds above the surface, which may place BMB 9 in the same chronological period as BKS 2 with a shared regional ceramic style emerging for that period. Alternately these differing patterns may reflect localised traits in ceramic manufacture.

Within the BKS 2 assemblage counts of feldspar, grog and rose quartz were too low for statistical testing, and limestone/shell did not feature at all. The remaining quartz, hematite and mica inclusions featured at the statistically expected frequencies in both the upper and lower level contexts with no depth patterning discernible. Overall in both upper and lower assemblages mica is the most prevalent inclusion, followed closely by quartz. Hematite is less frequent than mica and quartz at BKS 2, though still appearing in high levels. Table 6.17 indicates the percentage contribution of each of these three to the total inclusions counts in both upper and lower layers; these figures indicate almost equal inclusion ratios in both layers, suggesting no change in clay composition over time.

	Upper (Surface/002)	**Lower (004/005)**
Quartz	0.34	0.36
Mica	0.37	0.38
Hematite	0.25	0.25

Table 6. 17: proportions of quartz, mica and hematite inclusions within the ceramics assemblages from the upper and lower layers of BKS 2, indicating no change in ceramic composition

Within the BKS 2 assemblage 33% of the sherds were recorded as magnetic. This is almost double the average percentage of magnetic sherds from excavated sites (17.38%), and may reflect the nature of the locally exploited resources in the vicinity of BKS 2, as Bukasa lies in an area with a naturally high magnetic signature (see Figure 6.11). Magnetic sherds at BKS 2 appear with greater frequency on the surface; significance testing confirms that magnetism has a definite association with upper levels of the trench and an absence in lower levels. This matches depth patterning established at BBK 1 and BKS 20, suggesting ceramic attributes related to fabric are an effective indicator of age. This increase in the proportion of magnetic sherds within younger deposits may reflect exploitation of different local clay/inclusions resources compared to earlier potters. However magnetism also has a statistically proven geographic patterning with a heightened presence of magnetic sherds in sites to the east and a reduced appearance in western assemblages; therefore magnetism can be used as both a spatial and temporal indicator within the islands.

Bukasa 2 Decorative Techniques

Nine different decorative techniques were recorded at BKS 2. Initially frequencies of undecorated sherds appeared to increase with depth, though the strength of patterning was too weak to be indicative of a depth trait once the Chi Squared test was applied. Amongst the decorated sherds only KPR and stylus occurred in high enough quantities for a statistical analysis, though the ubiquitous presence of both throughout the trench indicates no change in the appearance of these decorative techniques and age of the deposits at BKS 2. Whilst the number of cord-wrapped paddle and grass decorations featured in numbers marginally too small for Chi Squared testing, their individual counts were combined due to frequent co-occurrence on the same sherd and subsequently tested for patterning. Grass and cord-wrapped paddle decorations combined have a unique association with the surface levels of the trench, and in fact they only feature on the surface of the trench with a complete absence from both the underlying disturbed contexts and from the lower archaeological layers. KPR, stylus and comb were the only decorative techniques applied to lower level ceramics from the total of nine techniques present at the site, indicating the wide range of variation in decorative techniques is unique to the surface layers of the site. An increased variation of decorative techniques in younger contexts appears to be a recurring pattern which has also emerged in the assemblage from BMB 9, a site which is hypothesised as belonging to the same chronological period as BKS 2 due to similarities in fabric coarseness ratios.

Bukasa 2 Rim Sherd Attributes

Despite the high number of rim sherds at BKS 2 the vast majority came from the surface assemblage with only four rims in context 002, eleven rims in context 004, and no rims in context 005. Open collared bowls, collared jars and tobacco pipes feature too rarely for statistical testing. In the both the surface/upper and lower layers of the trench bowls and jars feature at expected levels, though overall there are more bowls than jars within the trench.

Eight everted rim forms, three thickened rim forms and three simple rim forms are present at BKS 2, though only EvGr2 and ThGr3 rims occur with any frequency (see Figure 6.49). Half the overall rim assemblage is composed of ThGr3 profiles, with counts matching the expected frequencies in upper and lower layers. All other rim forms at the site have counts too low in the sub-surface assemblages for any statistical testing to be carried out. Similarly due to low rim sherd counts in the main archaeological horizon (context 004) no statistical testing could be carried out on the distribution of individual rim diameter groups within the trench. However the large to very large RD5-RD7 rims (24-42cm) when grouped provide values large enough for a Chi Squared test, the results of which associate these large rims with younger ceramics. This same patterning in the temporal distribution of rim diameters exists at BBK 1. At BKS 2 again individual rim thickness groups contained sherd counts too low for significance testing; when amalgamated into ‘small to medium’ and ‘large to very large’ rim thickness groups all expected frequencies matched the observed counts throughout the trench, indicating no association between rim thickness and depth.

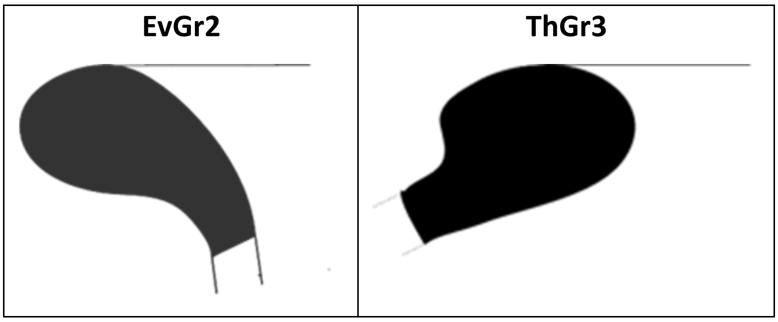


Figure 6. 49: most common rim forms appearing in the assemblage from Bukasa 2

Bukasa 2 Principal Components Analysis

A Principal Components Analysis was conducted on the excavated ceramics from the surface and contexts 002 and 004 at Bukasa 2. The disturbed uppermost context 001 and an intrusive cut recorded as context 003 both yielded no ceramics, and the sherd count for the basal context 005 fell below 5. Preliminary PCAs were first carried out on fabric attributes, decorative techniques, and rim attributes to determine which attributes contribute more than 15% of the variance between contexts. The preliminary PCA identified the following attributes to be included in the full PCA at BKS 2: coarse, medium, and fine grained clays, quartz, hematite, mica, feldspar, and rose quartz inclusions, magnetism, KPR, TGR, CWP, grass, stylus, undecorated, jar and bowl vessel forms, EvGr2, EvGr12, ThGr1, and ThGr3 rim forms, RD3-7 rim diameters, and RT1-7 rim thicknesses.

The full PCA for BKS 2 resulted in two Principal Components with PC1 contributing 53.663% of the variance between contexts, PC2 contributing 46.337% of the variance. The component plot in Figure 6.50 indicates which attributes frequently appear in the same contexts together. There is a wide spread of attributes on this diagram, with several distinct clusters appearing. Bowls appear to associate contextually with ThGr1 rims, hematite and magnetism, very thin RT1 and heavily thickened RT5/RT6 rims, and wide RD5 and RD6 diameters (coloured black). Stylus decorated and undecorated sherds occur in association with one another at BKS 2 (coloured blue). Sherds constructed from coarse grained clays occur alongside those containing mica and quartz, and medium RD3 and RD4 rim diameters (coloured red). Jars tend to feature with EvGr2 rims, and narrow to medium RT2 and RT3 rim thicknesses (coloured green). EvGr12 rims overlap directly with fine grained clays, rose quartz inclusions, and grass decorations, with some associations to medium grained clays, very wide RD7 rim diameters, and feldspar inclusions (coloured yellow). Finally ThGr3 rims seem to associate with KPR decorated sherds (coloured lilac).

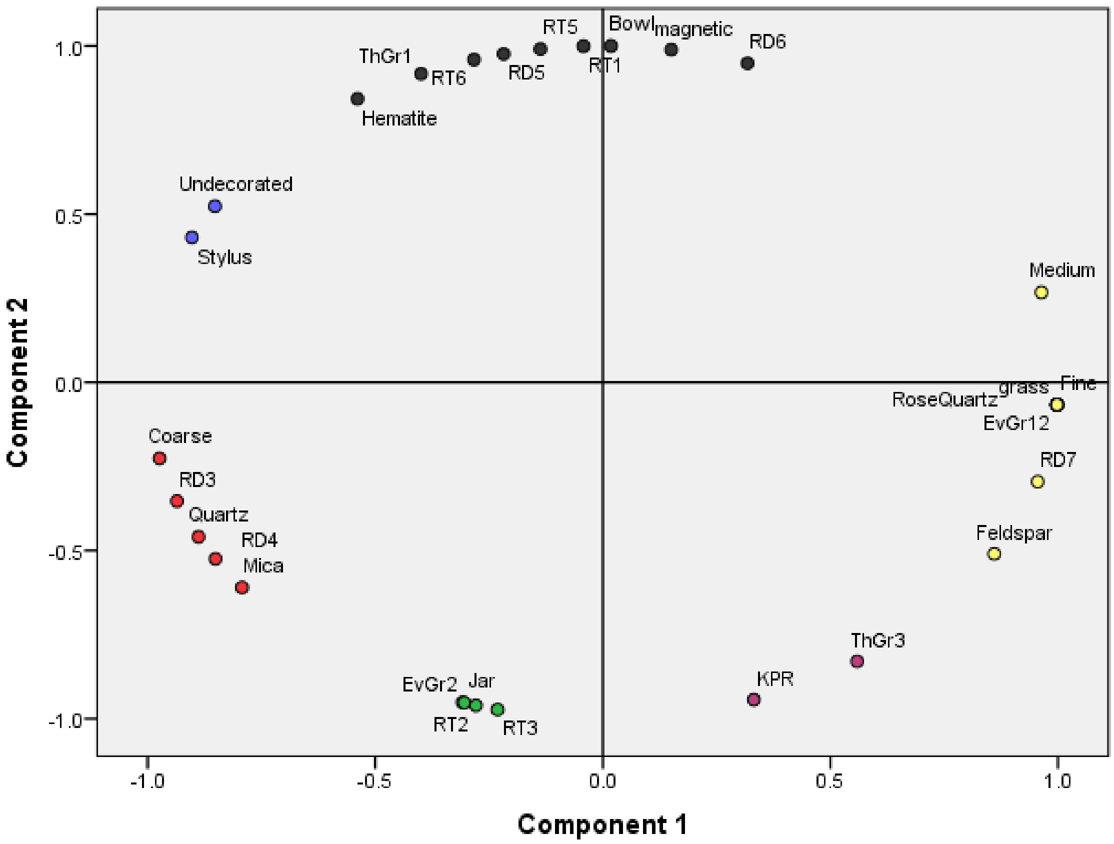


Figure 6. 50: Component Plot of attributes from BKS 2, with clusters of associated attributes coloured accordingly

Table 6.18 indicates the Eigenvector loadings for the three components. PC1 exhibits a high positive loading of fine and medium grained clays, feldspar and rose quartz inclusions, TGR, grass, and CWP decorative techniques, EvGr12 and ThGr3 rims, and RT4, RT7, and RD7 rims, and a high negative loading of coarse grained clays, quartz, mica, and hematite inclusions, stylus decorations and undecorated sherds, and RD3 and RD4 rims. PC2 has a high positive loading of bowls, hematite inclusions and magnetism, undecorated sherds, ThGr1 rims, RT1, RT5, RT6, RD5, and RD6 rims, with a high negative loading of jars, feldspar and mica inclusions, EvGr2 and ThGr3 rims, KPR decorations, RT2 and RT3 rims, and RD4 rims.

	Component	
	1	2
TGR	.998	
grass	.998	
EvGr12	.998	
RT4	.998	
Cord Wrapped Paddle	.998	
Fine	.998	
Rose Quartz	.998	
RT7	.998	
Coarse	-.974	-.226
Medium	.964	.267
RD7	.955	-.296
RD3	-.936	-.353
Stylus	-.903	.430
Quartz	-.888	-.459
Feldspar	.860	-.510
Undecorated	-.852	.523
RD4	-.851	-.525
Mica	-.793	-.610
Bowl		1.000
RT1		.999
RT5	-.137	.991
magnetic	.150	.989
RD5	-.218	.976
RT3	-.231	-.973
RT2	-.279	-.960
RT6	-.283	.959
EvGr2	-.304	-.953
Jar	-.308	-.951
RD6	.318	.948
KPR	.332	-.943
ThGr1	-.399	.917
Hematite	-.539	.842
ThGr3	.559	-.829

Table 6. 18: Eigenvector loadings for each Principal Component from BKS 2 (values below .10 have been excluded from the table)

Figure 6.51 illustrates the scatter plot for PC1 Vs PC2. The surface assemblage loads highly on the PC1 axis but is unaffected by PC2, indicating a presence of fine and medium grained clays, feldspar and rose quartz inclusions, CWP, grass and TGR decorative techniques, medium to heavily thickened rims with very wide diameters, EvGr12 rims, and ThGr3 rims associated with thickened closed bowls.

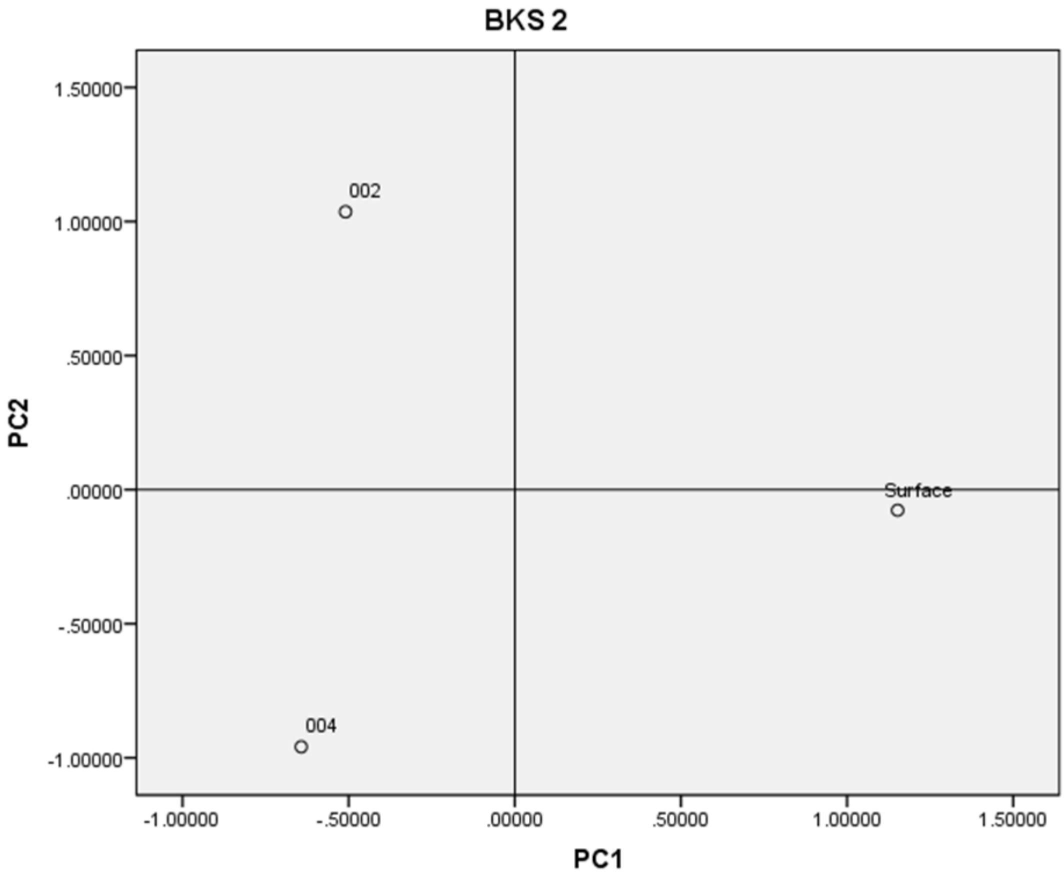


Figure 6. 51: Scatter plot of PC1 (+ loading of fine and medium grained clays, feldspar, rose quartz, TGR, grass, CWP, EvGr12, ThGr3, RT4, RT7, RD7 / - loading of coarse grained clays, quartz, mica, hematite, stylus, undecorated, RD3, RD4) Vs PC2 (+ loading of bowls, hematite, magnetism, undecorated, ThGr1, RT1, RT5, RT6, RD5, RD6 / - loading of jars, feldspar, mica, EvGr2, ThGr3, KPR, RT2, RT3, RD4) for BKS 2

The assemblage from context 002 exhibits a high negative loading on PC1 and a high positive loading on the PC2 axis, indicating a prevalence of coarse grained clays, bowls and ThGr1 rims, hematite, quartz, and mica inclusions, magnetism, stylus decorations and undecorated sherds, medium to large rim diameters and thicknesses, and some very narrow rims. Context 004 also presents a high negative loading on the PC1 axis, which associates its assemblage with coarse grained clays, quartz, mica, hematite, stylus, absence of decoration, and medium rim diameters. However a high negative loading on the PC2 axis also suggests a presence of jars and associated EvGr2 rims, ThGr3 bowls, feldspar, mica, KPR, and narrow to medium rim thicknesses.

From the PCA at BKS 2 there appears to be little definitive depth patterning in attributes. The surface associates with TGR, grass, and CWP decorative techniques, and the EvGr12 rim form which do not feature strongly below the surface. However from the intrusive cut within the trench (context 003), and the abundance of surface materials, it appears the ceramics with the trench have been highly disturbed by post-depositional processes.

Bukasa 2 Ceramic Analysis Summary

This ceramic analysis from BKS 2 seems to suggest a homogenous site with a single contemporary span of occupation through the layers, which is similar to that observed at BMB 9. However, at both sites there is evidence for post-depositional mixing which affects the interpretation of change in ceramic manufacturing traditions through time, though basic changes in the percentage presence of attributes throughout the trench may be commented upon. At both sites this is characterised by slight changes in the proportion of coarse to medium grained fabrics through time, while mineral inclusions remain fixed with a combination of quartz, hematite and mica. At both sites there is also an increase in the diversity of ceramic decorative techniques in the younger layers, though generally counts of the rarer techniques remain too low to be included in the local manufacturing tradition and likely arrive at the site through trade. Additionally at BKS 2 magnetism associates more prominently with younger ceramics; the absence of magnetism as an attribute at BMB 9 may be due to the observed geographic patterning whereby magnetism increases in an easterly direction; with BKS 2 located substantially further east in the archipelago magnetism becomes an attribute to be considered. The reduction in magnetism with depth is also exhibited at BKS 20 and BBK 1, suggesting the incorporation of different, more magnetic clay/temper sources in the younger layers, possibly due to resource exhaustion; this is discussed further in Chapter 8. Rims appear to increase in diameter on younger ceramics at BKS 2, and a general increase in larger vessels through time occurs throughout the Sesse Islands assemblages, as detailed in Part 3 of this chapter.

6.2.6 Site Bubeke 7 Ceramic Analysis

The surface collection from BBK 7 had a distinctively high number of cord-wrapped paddle (CWP) decorated sherds accounting for 27% of all CWP decorations encountered during the survey. The number of CWP sherds on the surface at BBK 7 stands at fifteen times the average number at all other sites. Grass decorations, often found on the interior of the same sherds decorated with CWP, were also uniquely high in the surface assemblage form BBK 7 with counts also at 15 times the average of grass decorated sherds recorded in survey at all other sites. CWP rims recorded during the survey at BBK 7 bore a unique neatly aligned punctate stylus decoration on the lip of the rim (see Figure 6.52). No archaeological remains other than ceramics were associated with BBK 7.

Figure 6. 52: punctate stylus decorations on the lip of cord-wrapped paddle and grass decorated sherds from BBK 7

Three sub-surface contexts were recorded during excavation, though considering the surface assemblage for BBK 7 was over twice the average survey assemblage size within the study region, there were relatively few sub-surface ceramics. The uppermost excavation layer (context 001) only contained one sherd, with a low weight of fragmented sherds under 2x2cm in size (see Table 6.19). The main archaeological horizon (context 002) only contained 24 sherds, and again a low weight of fragmented sherds. The sterile bottom layer of the trench is not expected to contain many sherds, and only two ceramics were recorded in the lowest context at BBK 7. With such low ceramic counts from each contest it is possible that the main body of archaeological ceramics lay on the surface at BBK 7 and any sub-surface remains are the result of post-depositional mixing from this surface layer. To test this premise by examining similarities and differences between surface and sub-surface deposits, the surface and 001 contexts were amalgamated and compared to contexts 002/003.

Context	Analysed Sherd Count	Weight (G) of sherds<2x2cm	Percentage of sherds <2x2cm
001	1	30	75
002	24	200	50
003	2	40	57.14

Table 6. 19: Counts of analysed sherds and weights of fragmented unanalysed sherds from sub-surface contexts at Bubeke 7. Context aggregates are delineated in red and shaded according to groupings

Bubeke 7 Fabric Analysis

In terms of fabric coarseness the surface/upper assemblage contained slightly less coarse and more medium grained ceramics than expected, with the opposite pattern existing in the lower contexts. This same pattern in the distribution of fabric coarseness has been recorded at other excavation sites in this study (BMB 9 and BKS 2). It is also worth noting that fine grained sherds which elsewhere have proven to be a feature of the most antiquated ceramics (at BBK 1 and BKS 20) are completely absent in both surface and sub-surface deposits at BBK 7 . However the results of a Chi

Squared test indicate that minor differences in levels of coarse and medium grained fabrics at BBK 7 are not indicative of any depth patterning.

Quartz, hematite and mica were the most common ceramic inclusion at BBK 7 with feldspar, grog and rose quartz appearing extremely rarely and limestone/shell not at all. Quartz, hematite and mica all featured at expected frequencies in both the upper and lower contexts, indicating no patterning in the distribution of inclusions throughout the trench.

24% of the sherds from BBK 7 are magnetic, which is above average for excavation assemblages. However in both upper and lower contexts the observed frequency of magnetic sherds matched the expected levels.

Bubeke 7 Decorative Techniques

Six different decorative techniques were present in the BBK 7 assemblage, though only undecorated sherds and cord-wrapped paddle decorated sherds are numerous enough for a statistical analysis. Due to the common co-occurrence of grass on the same sherd as CWP decorations, the two decorative attributes were grouped for the Chi Squared test. Results indicate that an absence of decoration is a trait of the deeper deposits, whereas CWP and grass correlate with younger deposits. In fact, CWP, grass, and also stylus decorations only feature in the surface assemblage from BBK 7. Therefore although fabric coarseness does not differ greatly between the upper and lower contexts, there is some evidence to suggest older ceramics are less frequently decorated (which matches previous patterns from BMB 3B), and CWP and grass decorations are both younger than other decorative techniques, which matches patterns from BMB 3B, BKS 20, BMB 9 sand BKS 2 where CWP and grass are both only ever found on the surface (site BBK 1 did not have any CWP or grass decorated sherds within any context). Accumulated levels of the rarer decorations (comb and CWR) at BBK 7 are equal between both the upper and lower context groups, and remain low in number.

Bubeke 7 Rim Sherd Attributes

Only two rims were encountered in the sub-surface levels and therefore no statistical testing can be carried out on the rim sherd attributes (vessel form, rim form, rim diameter, and rim thickness). Overall site patterns for rim sherd attributes match the survey results, which show a composition with equally high numbers of bowls and open-collared bowls alongside very few jars. These open-collared bowls are a unique form only observed in very low counts in surface assemblages elsewhere (BKS 2, BMB 9, BKS 20, BMB 3B), or completely absent from collections (BBK 1), suggesting the vessel form is uniquely associated with a chosen function or aesthetic (or symbolic) style, which is a recent innovation in the ceramic sequence. These open-collared bowls are adorned with EvGr1 rims, with all standard bowls at BBK 7 featuring the same ThGr3 closed and externally thickened profile which appears to be most popular throughout the fieldwork region (see Figure 6.53).

Rims at BBK 7 occur in medium to very large diameters, though 70% of all rims at the site are in the large to very large RD5 to RD 7 size category (24-42cm). These rims feature a range of thicknesses from RT1 to RT 6 (0.1-2.9cm), though the thinnest RT1 rims are most numerous.

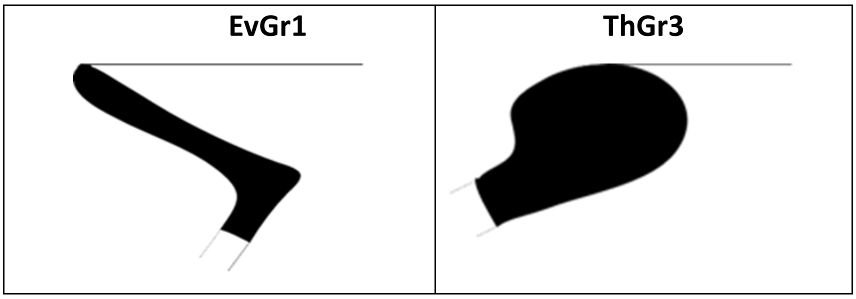


Figure 6. 53: common rim forms occurring in the assemblage from Bubeke 7

Bubeke 7 Principal Components Analysis

A Principal Components Analysis was attempted on the excavated ceramics from the surface and context 002 from Bubeke 7. Context 001 and context 003 both yielded less than 5 ceramics each. From the remaining ceramics the following attributes occurred in quantities great enough for analysis: coarse and medium grained clays, quartz, hematite, and mica inclusions, magnetism, KPR, stylus, CWP, and grass decoration, and undecorated sherds. Due to the small number of attributes no preliminary PCA was conducted, and instead a full PCA including all attributes was attempted. However only one Principal Component was extracted from the data, responsible for 100% of the variance and with a positive loading of medium grained clays, hematite inclusions, KPR, stylus, CWP, and grass decorations, and a negative loading of coarse grained clays, quartz and mica inclusions, magnetic sherds, and an absence of decoration. Therefore no comparison between Components and contexts can be drawn. A simple observation can be made that sherds constructed from medium grained clays at BBK 7 tend to occur alongside sherds containing hematite and the full range of decorative techniques present at the site, whereas sherds constructed from coarse grained clays associate alongside magnetic sherds, sherds containing quartz and mica, and undecorated sherds.

Bubeke 7 Ceramic Analysis Summary

Site Bubeke 7 appears to be another homogenous site. The only change between older and younger deposits is in decorative techniques; the lower layers feature more plain pottery, and the common CWP and grass decorations are reserved for the younger ceramics. According to Gosselain's study of the Bafia in Cameroon (1992) decorative techniques may change depending on an individual potter's ability to produce different decorative tools, whereas mixing of the clay is more reflective of skills learnt from other potters already operating within the same social group. We know the homogeneity of fabrics at BBK 7 does not relate solely to the availability of resources as the island is small and easily traversable, and the fabric data from the site Bubeke 1 on the same island is very different. Therefore the upper and lower deposits from BBK 7 may be reflective of potters trained within the same social group to mix fabrics in the same way, but with potters producing the younger ceramics learning how to make different decorative tools from elsewhere. Gosselain records that the ability to learn how to create different decorations may not necessarily indicate time depth, as he records complete decorative change within a space as short as 10 years (Gosselain 1992), and therefore no information suggests any great temporal difference between the upper and lower layers of the trench at BBK 7. A later regional analysis which incorporates ceramic data from comparative sites on the mainland lakeshore highlights similarities between the ceramics from BBK 7 and from collections at Namusenyu on the northern lakeshore. These similarities appear to suggest the two sites were linked in a historic trade network, and this interpretation is discussed in Chapter 8.

6.2.7 A Principal Components Analysis of all Contexts from All Excavated Sites

A PCA was conducted on fabric and decorative attributes appearing more than 1% of the time or in counts greater than five to compare the conglomerated assemblages from each of the six excavation sites. Rim attributes were excluded from this PCA due to the absence of rim sherds from a number of the sites; their inclusion would give skewed patterning in favour of sites with and without rim sherds, regardless of patterning within the presence of the rim attributes themselves. This resulted in four Principal Components, though with PC4 contributing to less than 5% of the variance (6.136%), only PC1, PC2, and PC3 were considered in the analysis.

	Component		
	1	2	3
Coarse	-.934		.225
Stylus	.928	.185	.116
Finger	.887		.251
Fine	.880	-.360	-.238
Undecorated	.880	-.121	-.374
Grog	.874	-.390	-.220
Mica	-.859	.478	
Comb	.825	-.551	
Grass	-.654	-.524	.530
cord wrapped paddle	-.653	-.554	.489
Medium		.962	
Rose Quartz	-.181	.885	.306
KPR	-.532	.829	-.123
TGR	-.147	.782	-.174
Magnetic		.189	.963
Quartz	-.109		-.935
Hematite	-.383	-.109	.893
Clay Roulette	.589	-.144	-.162

Table 6. 20: Eigenvector loadings for PC1, PC2 and PC3 from an analysis of all excavated sites (values below .10 have been excluded from the table)

Table 6.20 indicates the Eigenvector loadings for each Principal Component. PC1 is responsible for 51.951% of the variance and has a high positive loading of fine grained clays, grog tempers, stylus, comb, finger, clay roulette decorations and undecorated sherds, and a high negative loading of coarse grained clays, mica inclusions, grass, CWP, and KPR decorations. PC2 contributes 23.812% of the variance between the excavated sites and has a high positive loading of medium grained clays, rose quartz inclusions, TGR and KPR decorations, and a high negative loading of CWP, comb, and grass decorations. Finally PC3 is responsible for 16.131% of the variance, with a high positive loading of hematite inclusions, magnetism, and grass decorations, and a high negative loading of quartz inclusions. This attribute clustering is reflected in the three-dimensional component plot illustrated in Figure 6.54.

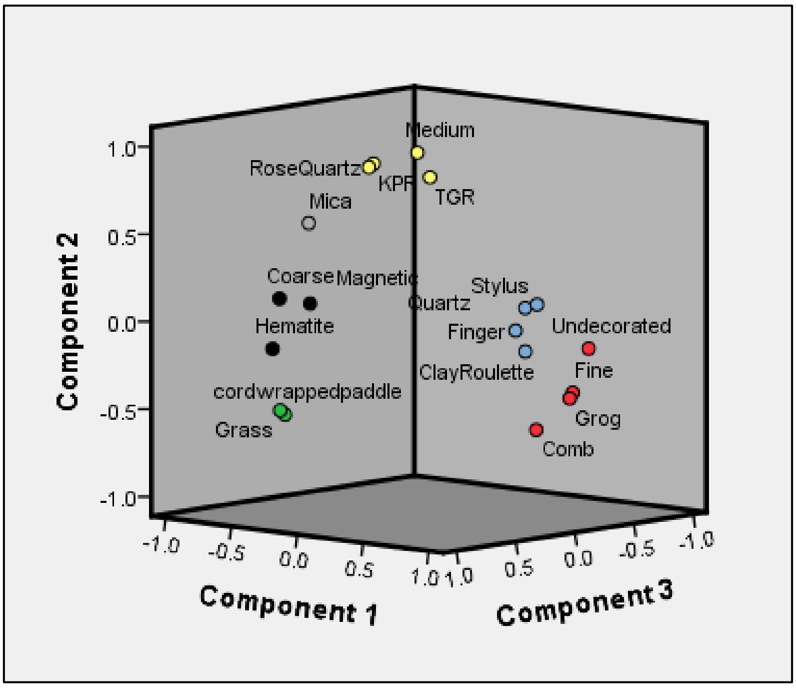


Figure 6. 54: Component Plot of attributes from all excavated sites, with clusters of associated attributes coloured accordingly

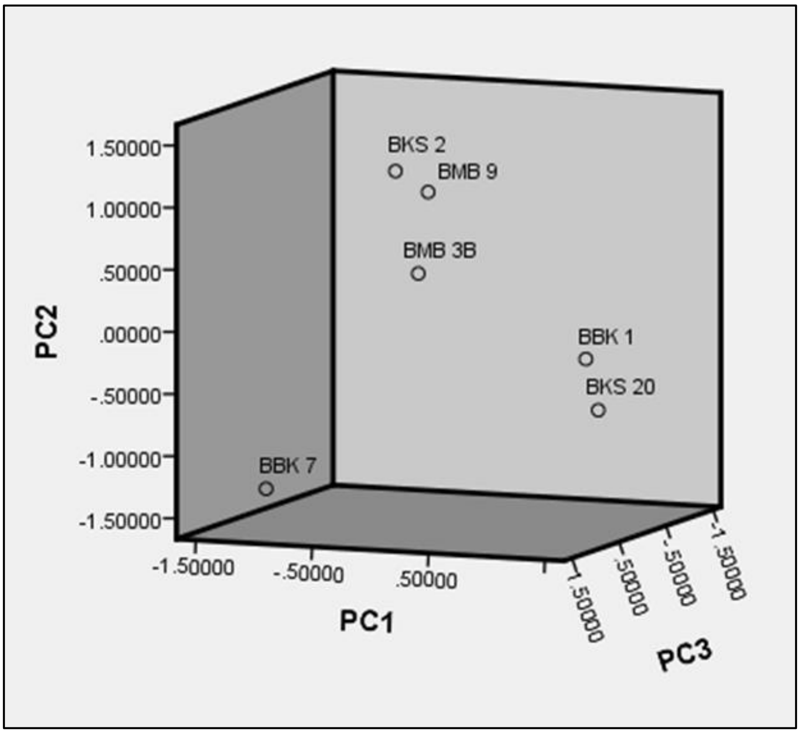


Figure 6. 55: scatter plot of each excavated site in relation to PC1, PC2, and PC3

Figure 6.55 provides a three-dimensional plot of each excavated site in relation to the three Principal Components described above. The close positioning of BKS 20 and BBK 1 suggests similarities between the two ceramic assemblages, as does the proximal positioning of both BKS 2, BMB 9, and to a lesser extent BMB 3B. The assemblage from BBK 7 is far removed from any other site on the plot, highlighting the stark differences in the ceramics from this site when compared to all other excavated sites. In a two-dimensional plot of **PC1 Vs PC2** (Figure 6.56), this same patterning is obvious. Both BBK 1 and BKS 20 exhibit a high positive loading on the PC1 axis, and a negative loading on the PC2 axis which is more significant for BKS 20 than it is for BBK 1. In relation to ceramic attributes this patterning implies a presence of fine grained clays, grog tempers, stylus, comb, finger, clay roulette decorations and undecorated sherds, and lesser appearance of CWP, comb, and grass decorations. With the previous noted absence of both CWP and grass from the BBK 1 assemblage it can be assumed that the negative loading on the PC2 axis relates solely to the presence of comb decorations. With a high negative loading on both the PC1 and PC2 axis, BBK 7 associates with coarse grained clays, mica inclusions, grass, CWP, and KPR decorations. Both Bubembe sites load negatively on the PC1 axis suggesting the presence of coarse grained clays, mica inclusions, grass, CWP, and KPR decorations. BMB 3B is largely unaffected by the PC2 axis, whereas both BMB 9 and BKS 2 load positively, indicating medium grained clays, rose quartz inclusions, TGR and KPR decorations within their assemblages.

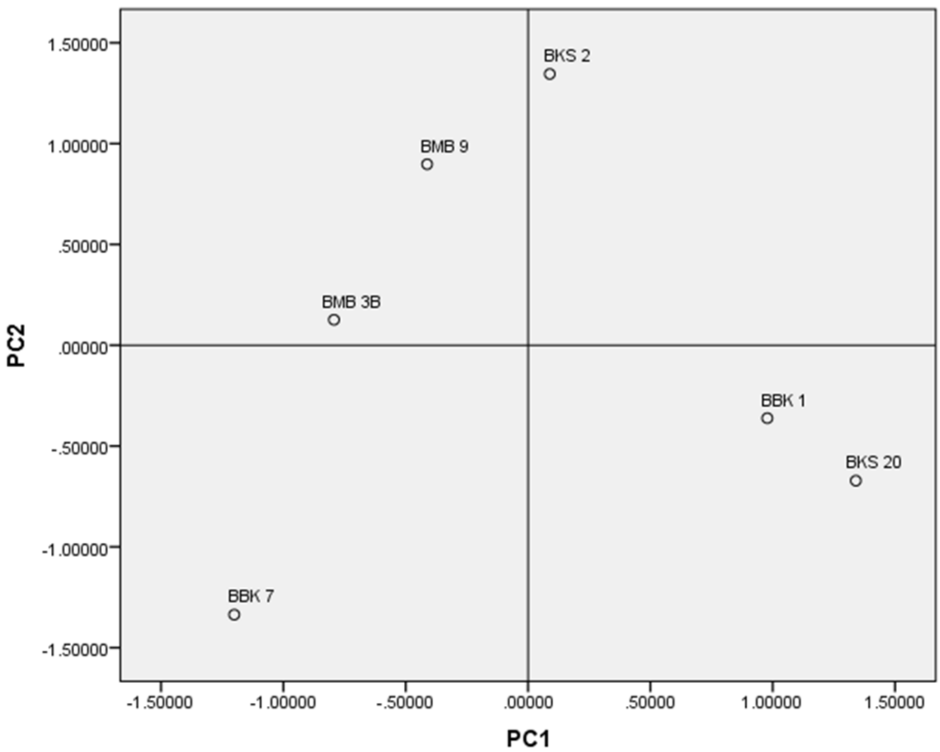


Figure 6. 56: scatter plot of PC1 (+ loading of fine grained clays, grog, stylus, comb, finger, clay roulette, undecorated / - loading of coarse grained clays, mica, grass, CWP, KPR) Vs PC2 (+ loading of medium grained clays, rose quartz, TGR, KPR, / - negative loading of CWP, comb, grass) for all excavated sites

In plots of **PC1 Vs PC3** (Figure 6.57) and **PC2 Vs PC3** (Figure 6.58), BBK 1 and BKS 20 remain closely positioned, and again both Bubembe sites fall into the same quadrant of the graph, suggesting some connection between the attribute patterning at the two sites, which has so far been interpreted as a chronological similarity based on the abundance of fine grained clays and grog in both assemblages, which appears to relate to stratigraphic depth in the individual site Chi Squared and PCA testing. In all three scatter plots both BMB 3B and BMB 9 fall into the same quadrant, though with obvious differences in loading on each axis, and similarities in patterning between these two sites has been based on geographic positioning to the west of the archipelago, based on the results of the Chi Squared and PCA analysis in part 1 of this chapter. So far, with varying degrees of loading, both Bubembe sites exhibit a predilection for coarse and medium grained clays, mica, rose quartz and quartz inclusions, all roulette decorations (CWP, KPR, TGR) and grass decorations. BBK 7 remains disjointed from all other sites, and apart from some similarities with BMB 9 in the first scatter plot, the assemblage form BKS 2 is also different to all other sites.

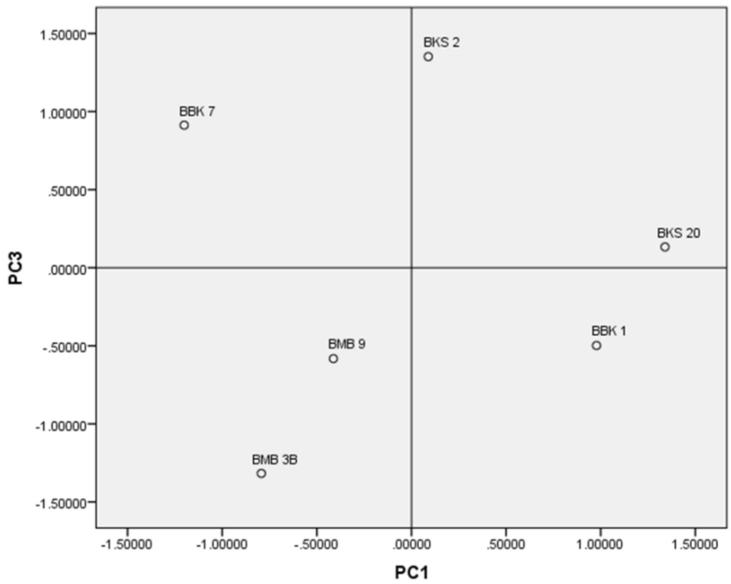


Figure 6. 57: scatter plot of PC1 (+ loading of fine grained clays, grog, stylus, comb, finger, clay roulette, undecorated / - loading of coarse grained clays, mica, grass, CWP, KPR) Vs PC3 (+ loading of hematite, magnetism, grass / - negative loading of quartz) for all excavated sites

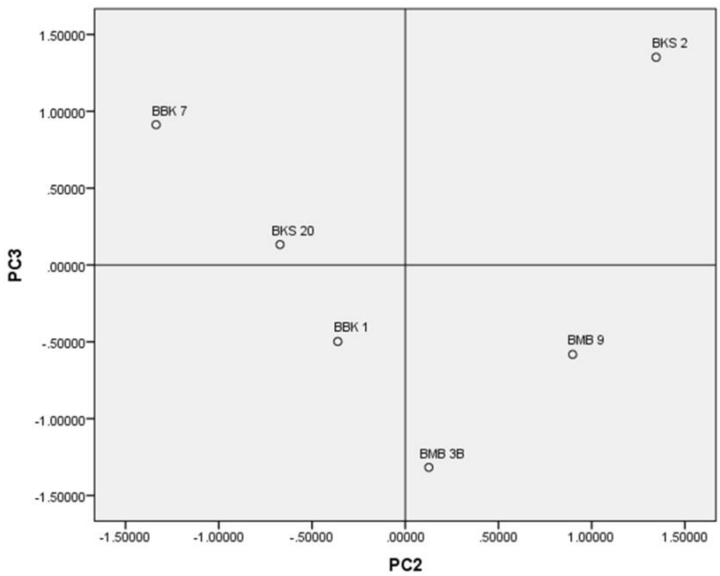


Figure 6. 58: Scatter plot of PC2 (+ loading of medium grained clays, rose quartz, TGR, KPR, / - negative loading of CWP, comb, grass) Vs PC3 (+ loading of hematite, magnetism, grass / - negative loading of quartz) for all excavated sites

A PCA was also conducted to compare the individual contexts of each excavated site to one another, to determine whether certain contexts of different sites bore any affinity. Again all fabric and decorative attributes were considered, though rim attributes were not included for reasons stated previously. This resulted in six Principal Components with an Eigenvalue above 1, though only PC1 and PC2 contributed more than 15% of the variance, and therefore only these two Components were considered in the analysis. Table 6.21 provides the Eigenvector loadings for each of the two Components. PC1, which is most responsible for attribute patterning between different contexts *and* different sites with a contribution of 32.059% of the variance, is characterised by a high positive loading of fine grained ceramics, grog tempers, limestone/shell inclusions, and comb decorations, and a high negative loading of coarse grained ceramics, mica inclusions, and KPR decorations. This would imply that these attributes listed here, specifically fine grained clays and grog tempers which have appeared as significant explanatory factors of difference in multiple Chi Squared and PCA analyses in this chapter, are most responsible for patterning both with depth and between sites. PC2 is responsible for 15.504% of the variance, with a high positive loading of KPR and TGR decorations, and rose quartz inclusions, and a high negative loading of undecorated sherds.

Figure 6.59 plots the contexts of each site against PC1 and PC2. In the format illustrated it is difficult to extract patterning, and therefore Figure 6.60 provides the same information, though colour co-ordinated to designate the early, intermediate, and late periods of each site. Note that these temporal designations are arbitrary to aid the interpretation of patterning on the graph; for each individual site the surface and uppermost sub-surface context are coloured as “late”, the middle sub-surface context(s) are coloured “intermediate”, and the deepest sub-surface context(s) are coloured as “early” (based on the previous PCA of BKS 20, the close grouping of contexts 006, 008, and 010 leads to all three being coloured as “early” in this plot).

	Component	
	1	2
Limestone	.893	
Comb	.891	
Grog	.810	-.401
Mica	-.767	.488
Fine	.765	-.444
Undecorated	.159	-.812
KPR	-.512	.773
Rose Quartz	-.108	.698
TGR	-.145	.677
Hematite	-.230	-.204
Quartz		
magnetic	-.257	
Grass		
Cord Wrapped Paddle	-.120	.140
Medium	-.154	.178
Coarse	-.597	.245
Feldspar		.103
Stylus	.492	.267
CWR	-.170	

Table 6. 21: Eigenvector loadings for PC1 and PC2 from an analysis of contexts from excavated sites (values below .10 have been excluded from the table)

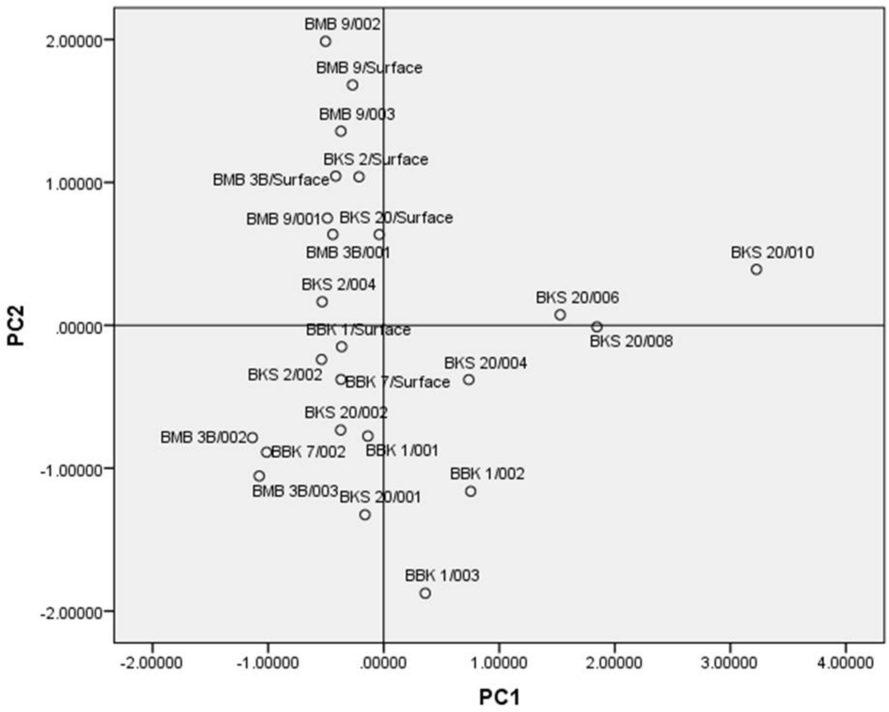


Figure 6. 59: scatter plot of PC1 (+ loading of fine grained clays, grog, limestone/shell, comb / - loading of coarse grained clays, mica, KPR) Vs PC2 (+ loading of KPR, TGR, rose quartz / - negative loading of undecorated) for all contexts form excavated sites

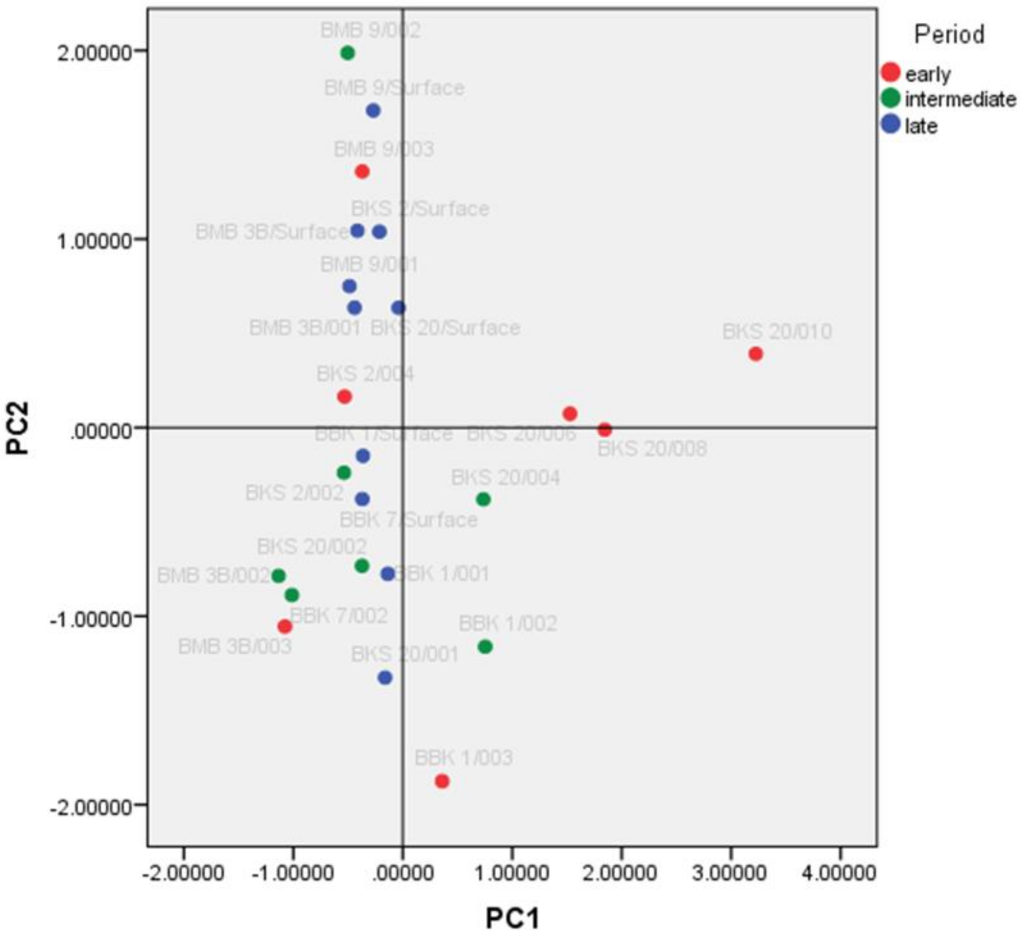


Figure 6. 60: Scatter plot of PC1 Vs PC2 for all excavated sites with arbitrarily defined early, intermediate, and late layers of each trench coloured accordingly

The only contexts which load positively on the PC1 axis, implying a presence of fine grained ceramics, grog tempers, limestone/shell inclusions and comb decorations, are the early and intermediate layers of sites BKS 20 and BBK 1. This matches observations from the individual site PCAs, and with prior identification in this chapter of fine grained ceramics and grog tempers as associated with the oldest ceramics in each site, we can presume that the lower levels of BKS 20 and BBK 1 are also the oldest of all the excavated levels from all Sesse Island sites. The PC2 axis simply reflects the presence of KPR and TGR decorations and rose quartz inclusions in its positive loadings, and an absence of decoration in its negative loadings. Arguments may be made to exclude the assemblage from BBK 7 from the immediate discussion as the majority of sherds were recovered from the surface, and a relatively few number were found in the sub-surface levels. Of the remaining sites, all contexts from BMB 9, and the late levels from BKS 2 have a high positive loading on the PC2 axis. The early and intermediate levels of BKS 2 hover around the zero mark of PC2. Finally the early levels of BKS 20 and BBK 1 are close to zero on the PC1 axis but load negatively on the PC2 axis, the early and intermediate levels of BMB 3B load negatively on the PC2 axis with a reading consistent with intermediate and late layers from both BKS 20 and BBK 1, and the late layers of BMB 3B load positively on PC2.

6.2.8 A Discussion of the Temporal Patterning of Ceramic Attributes in Excavation Assemblages from Bubembe, Bukasa and Bubeke

The excavation analysis presented here has produced several patterns in the distribution of ceramic attributes which appear to correlate with age. Initially, based on a presence/absence of attributes in different stratigraphic layers I can conclude that cord-wrapped paddle (CWP) and grass are the youngest decorative techniques with appearances limited solely to the surface collection of all excavated sites (except BBK 1 where they are completely absent). Similarly open-collared bowls, which are frequently decorated with a combination of CWP on the exterior, grass on the interior, and punctate stylus on the lip of the vessel, are only found in the surface assemblages at all excavation sites (except again for a complete absence at BBK 1); if the appearance of grass, CWP and open-collared bowls on the surface was simply the result of post-depositional processes shifting the ceramics upwards within the soil, then we would expect at least some occurrence in at least the upper sub-surface contexts, yet there are none. Therefore we can hypothesise that at least on the Islands of Bubembe, Bukasa and Bubeke open-collared bowls, cord-wrapped paddle and grass decorations are the most recent additions to the ceramic sequence. However we cannot extrapolate that this is true for the entire Great Lakes region. It is also worth remembering that the appearance of CWP and grass does not eliminate the presence of other decorative techniques, as open-collared bowls have also been recorded with KPR and stylus decorations as well as grass and CWP.

BKS 20 was the most important excavated site as ceramics from its well stratified contexts were indicative of multiple phases of occupation with evidence of archaeological structures. This is unique for the Sesse Islands as a whole, where sites tend to be shallow, characteristic of a single phase of occupation and devoid of any archaeological features other than material remains. The ceramic sequence at BKS 20 shows the oldest deposits to be characterised by fine grained clays tempered with grog and containing quartz with a low proportion of magnetism and hematite. Stylus and comb decorations are associated with these older deposits. The intermediary layer of the trench is characterised by coarse grained ceramics containing mica inclusions, with a frequent absence of decoration on the vessels. The youngest assemblage offers an abundance of coarse grained and frequently magnetic ceramics with hematite and feldspar inclusions. Bear in mind that the dominant attributes for each of the three layers are simply the attributes which appear more frequently than could be possible by coincidence, though these are not the only attributes present in each layer; older potters may show a preference for fine grained clays at BKS 20, but medium and coarse grained clays were still being exploited. Fine grained clays were simply the preferable but not sole manufacturing choice. As well as an abundance of certain attributes some layers are characterised by a distinct absence of attributes which are otherwise universally common; the oldest ceramics have a significant absence of KPR decorations, coarse grained clays, and feldspar and mica inclusions, whereas the intermediary layer lacks medium grained clays and stylus decorations. The differences in attribute patterning between the layers may reflect the introduction of new ceramic manufacturing techniques from interaction or the use of new clay/inclusions sources due to the depletion of older resources or simply discovery of a new viable clay source.

Due to the unique stratification of the trench at BKS 20, several potsherds from successive layers were dated directly using OSL. Previously dated sites in the Lake Victoria Basin have relied on the use of radiocarbon dating to assume dates for entire contexts, which is problematic in a region where the tropical soils are rich with humic matter and subject to increased bioturbation, causing post depositional disturbances. For this reason coupled with the unreliability of radiocarbon dating around the equator due to differing fluctuations in levels of carbon between the northern and southern hemispheres affecting the calibration curves (A. Reid pers. Comm.), OSL dating should be employed as a more accurate method for dating ceramics. The results of the OSL dating from Bukasa 20 are presented in Chapter 5 (see Table 5.7) and discussed in detail in Chapter 8. However here I will summarise the dating evidence; the four sherds from contexts 008, 006 and 004 which were successfully dated provide a range of 1004 – 1344 cal. AD. The earliest dates in this range come from the lower 008 context. Each of the four dates has a point of overlap of 1204 cal. AD in their error range confirming occupation of the site at this date, with a likely continuous occupation for at least 300 years. Furthermore, the dated sherds feature both comb decorations and neatly incised, cross-hatched stylus decorations (see Chapter 8 Figure 8.1), as well as fabrics which include both fine-grained, grog-tempered sherds and coarse grained examples containing only mineral inclusions. Therefore, the dating evidence implies that previous typologies based solely on decorative distinctions are not useful in the Lake Victoria Basin, and that earlier chronological phases cannot be determined by the complete presence or absence of decorative attributes over vast swathes of time, but instead must weigh up the changing relative proportions of all ceramic attributes (fabric, decorative, and rim attributes) present at a site over time.

Site Bubeke 1 also produced coherent changes in attribute patterning with depth in both the Chi Squared and PCA analysis, despite evidence for post-depositional disturbances within the trench and a single archaeological horizon. The older levels demonstrated an abundance of fine-grained ceramics with grog tempers and a low frequency of magnetism, and with un-thickened and flared jar rims. Younger surface ceramics were more often constructed from coarse and medium grained frequently magnetic fabrics with hematite and mica inclusions, KPR decorations, and very large and heavily thickened closed bowl rims. A comparison with the attribute patterning from Bukasa 20 suggests fine grained clays, grog tempers, and a lack of magnetism are indeed attributes of older ceramic deposits, whereas younger ceramic assemblages are associated with a greater proportion of coarse grained clays with hematite and mica inclusion. Potential explanations for the increase in proportions of magnetism in younger assemblages have been touched upon in this chapter; it may be likely that a depletion of sources of temper preferred in older phases such as grog lead to experimentation with other inclusions to achieve a similarly workable clay, based on the ‘feel’ of the fabric at time of manufacture. With the sandstone geology of the islands falling within an area with a naturally high magnetic signature (see Figure 6.11), local sources of inclusions frequently contain hematite, which is often magnetic, and thus the new inclusions added to the clay may be derived from local sources. Magnetism also increases in an easterly direction, which again relates to the map of high and low magnetic signatures (Figure 6.11), suggesting perhaps that local geological sources are more magnetic to the east, with ceramic assemblages further east are less prone to 'dilution' from trade, and ceramic assemblages to the west accessing un-magnetic raw materials either directly or through trade. This is discussed further in Chapter 8.

The assemblages from the remaining excavation sites all appeared to represent single phase occupations younger than those recorded at BKS 20 and BBK 1, with sub-surface deposits more akin to the intermediary phase ceramics at BKS 20. Based on the results of the Chi Squared and PCA testing conducted in this chapter, Table 6.22 lists the attributes which occur more frequently than expected from each excavation site, with the depth of the assemblage used to ascribe an indicator of age using the assemblage from BKS 20 as a guide. Any attribute which appears in the same period for half or more or the sites is coloured red as an attribute with a strong potential to be used in the future as an indicator of age, and anything coloured yellow appears more than once between sites and may be used to indicate age, though this may also be affected by resource/spatial patterning.

Table 6.22 implies that younger assemblages in the study region are characterised by an abundance of both coarse and medium grained ceramics, hematite tempers, and an increase in the number of sherds exhibiting a variety of rare decorative techniques with little time depth (e.g. clay cylinder roulette, CWR, metal bracelet). The only shared trait of the intermediary ceramic deposits is a greater absence of decoration. Oldest assemblages are also characterised by an increased proportion of grog inclusions (25-36%) compared to the younger levels of the same sites (4-11%). Fine grained clays, an increase of quartz inclusions and a lack of magnetism may potentially also be used as an indicator of older ceramics. However the results of the analysis on survey ceramics also suggests magnetism to be affected by spatial patterning, with an increase in the frequency of magnetic sherds in an easterly direction. Similarly fine grained clays on the surface indicate high clustering at sites in the centre of Bukasa, and a lower incidence in eastern Bukasa. Therefore magnetism and the presence of fine grained clays may only be indicative of age on a local scale and not throughout the entire region, as geographic patterning of these two attributes may also indicate patterning in manufacturing traditions with fine grained clays, which would be available throughout the archipelago due to the homogenous sandstone geology, more preferred in central Bukasa, and magnetic signatures of local resources more prevalent in the east of the archipelago. Further excavation of more island sites, exploration of the other islands in the archipelago, and an examination of the raw materials available in different locales would help determine whether fine grained clays and magnetic inclusions exhibit manufacturing choices alone or differential resource patterning.

	BKS 20	BBK 1	BMB 3B	BMB 9	BKS 2	BBK 7
Youngest ceramics	coarse grained	coarse grained		coarse grained		
	hematite	hematite	hematite			
	feldspar					
	magnetic				magnetic	
		medium grained		medium grained	medium grained	
		thick rims				
		Large diameters			large diameters	
		ThGr3 rims				
		mica				
		KPR	KPR			
			Stylus			
					CWP + Grass	CWP + grass
			Variet of decoration	variety of decoration	variety of decoration	
Intermediary period ceramics	coarse grained				coarse grained	
	mica					
	undecorated		undecorated			undecorated
Oldest ceramics	fine grained	fine grained				
	grog	grog	grog			
	quartz		quartz			
	stylus					
	comb					
	unmagnetic	unmagnetic				
		thin rims				
		EvGr3				

Table 6. 22: table indicating prevalent ceramic attributes within each excavation site with attributes highlighted in red having a strong potential for use as an indicator of age, and attributes highlighted in yellow having some potential for use as an indicator of age though this may be affected by spatial patterning

Using these fieldwork results the excavation sites may be ranked in order of age. BBK 1 and BKS 20 are the oldest sites in the study. It is likely BBK 1 is older than BKS 20 as cord-wrapped paddle and grass decorations and open-collared bowls are the youngest attributed recorded in this study, and BBK 1 is the only site to feature none of these attributes. This is not due to spatial patterning as Bubeke is a small, easily traversable island, and site BBK 7 nearby has the most CWP, grass decorations, and open collared bowls of all survey sites. Similarly with a spatial increase of magnetism in an easterly direction and BBK 1 being the third most easterly site of all survey sites, there is a distinct lack of magnetism in the sub-surface layers. After BBK 1 and BKS 20, BMB 3B is the only other site with an increase of grog tempered sherds below the surface, though in much lower numbers than at BBK 1 and BKS 20, and in the PCA of all excavated contexts from all sites the lower and intermediate layers of BMB 3B were the only excavated contexts to bear similarities to the intermediate layers of BKS 20 and BBK 1; therefore it likely appears next in a chronological sequence. BBK 7 can be considered the youngest site due to the abundance of grass and CWP decorations with a lack of sub-surface sherds. Of the remaining two sites BKS 2 and BMB 9 may be contemporaneous due to similarities in fabrics and decorative techniques, and similar patterning in the PCA, though a younger occupation may also exist at BKS 2 due to the presence of CWP and grass decorations. Therefore the following sequence can be hypothesised:

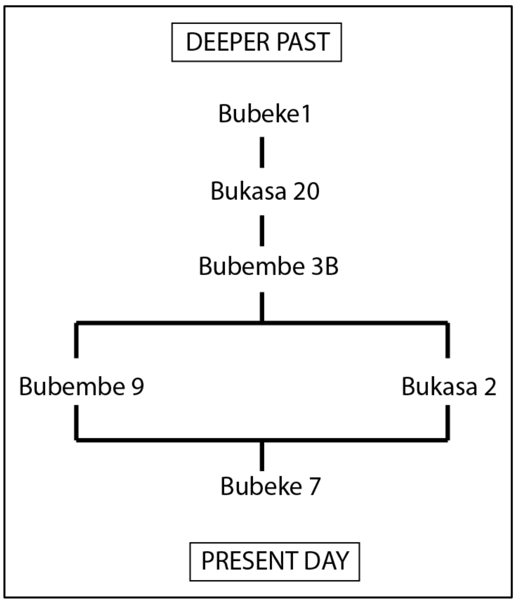


Figure 6. 61: simplified chronological succession of excavated sites from the fieldwork study, based on the ceramic attribute analysis

Based upon this proposed chronological sequence and the results of the Chi Squared analyses and PCAs conducted in this chapter, Table 6.23 provides a tentative seriation for the attributes which exhibit stratigraphic patterning within the excavated assemblages. It is important to note that the 'Early', 'Middle' and 'Late' Period designations are arbitrarily based upon a change in ceramic manufacturing patterns and do not correlate with chronological blocks of time previously used in the region (i.e. EIA, Transitional, and LIA). Attributes associated with the 'Early Period' are identified from the deeper contexts of BKS 20 and BBK 1. The 'Middle Period' is identified by the middle layers of BKS 20, the upper sub-surface layers of BBK 1, and the lower sub-surface layers of BMB 3B, BKS 2, and BMB 9. The 'Late Period' attributes are distinguished by the patterning recorded in the upper and surface contexts of all sites. We can see from this table there is a distinct decrease in the proportion of fine grained and grog tempered sherds from the Early to Late Periods, with an almost complete absence of both attributes in the Late Period. The opposite pattern exists for CWP decorations, which are almost exclusive to the Late Period. Hematite and magnetism exhibit a general decrease from the Early to Late Periods, though fluctuations are indicative of the uneven geographic patterning of these two attributes as discussed in Part 1 of this chapter.

	Fine Grained Fabric	**Grog**	**Hematite**	**Magnetic**	**CWP**	**Undecorated**
Late Period	0 - 3.5%	0 - 2%	15 - 40%	7 - 62%	3 - 33%	16 - 45%
Middle Period	5 - 36%	4 - 11%	12 - 25%	0 - 25%	0 - 3%	51 - 72%
Early Period	60 - 70%	25 - 36%	8 - 18%	5 - 9%	0%	50 - 83%

Table 6. 23: A seriation of ceramic attributes based upon the excavated assemblages on Bubembe, Bukasa and Bubeke Islands

Previously the presence of certain decorative techniques alone (where supporting rim or base form evidence is absent) has been used as a typological and temporal indicator in the Great Lakes region. However from these excavation results decorative techniques play little part in establishing a chronology, except that CWP and grass decorations are younger than other techniques, and frequencies of KPR decoration increase in younger deposits (though KPR is not the exclusive décor in these deposits). The presence/absence of stylus decoration was previously taken as the key chronological indicator, though in the current project stylus plays no such role. This study set out to answer a key question:

> *"Is an attribute-based analysis a more appropriate and useful means of identifying ceramic patterning in the Great Lakes region than existing typological systems?"*

The results of this field study show that an attribute-based analysis is more nuanced and revealing of patterns of change than previous methods which only focused on the presence or absence of specific ceramic traits. The attribute based method allows us to realise that different ceramic traits tend to be ever-present through time, and the key in identifying ceramic patterning is an awareness of how these traits fluctuate in relative proportion through both space and time. The following chapter will examine how the island assemblages compare to those from the mainland sites which have been recorded by previous researchers, to determine how ceramic patterning on Bukasa, Bubeke and Bubembe fits into the wider region.

Chapter 6 Part 3: A Comparison of Survey and Excavation ceramics

Part one of this chapter has highlighted geographic patterning of ceramic attributes throughout the Sesse Islands, based upon an analysis of the surface ceramics. This intended to recognise localised manufacturing traditions through clustering of attributes, such as the unique presence of the fine-grained and grog-tempered sherds in central Bukasa, specifically in the surface assemblages of BKS 13 and BKS 20. Part one also considered the differential presence of attributes on a west to east basis, with sites further west considered to be closer to the mainland and thus more likely to interact with mainland populations, and sites further east likely to be more isolated with less access to trade with populations living outside the islands. The results of this seemed to indicate that TGR decorations are more likely to be found on ceramics from the westerly sites, and assemblages further east in the archipelago feature a greater proportion of magnetism. These themes uncovered in the spatial patterning of attributes at the fieldwork sites are further explored in an analysis of wider spatial patterns in the comparative site analysis in Chapter 7, with all patterns discussed in Chapter 8.

Part two of this chapter examined the ceramics from the excavated fieldwork sites with an aim to elucidate temporal patterning in attributes. The results indicated an association between certain attributes and older ceramics (most notably fine-grained fabrics and grog), and between certain other attributes and younger ceramics (such as magnetism, CWP and grass decorations, and larger rim diameters). Again the reasons for these patterns are discussed in depth in Chapter 8. However at some sites attributes associated with depth and age are absent from other sites; one example is the presence of comb decorations at Bukasa 20, which associates with the older ceramics at the site though this decorative technique is largely absent at the other excavated site in the study area. This may represent a case of both spatial and depth patterning in the appearance of comb, with this decorative technique featuring in older sites, but only in the geographic locale of Bukasa 20.

Therefore, it would be useful to compare the amalgamated surface ceramics from the entire fieldwork region, which provide data on the spatial patterning of attributes throughout the islands, with the amalgamated excavated ceramics, which give an indicator of depth. This will highlight which ceramic attributes are distinctive of older (sub-surface) potting traditions and which associate with more recent traditions, as well as indicating any characteristics which have remained constant through time and may be definitive of the region as whole rather than independent manufacturing choices.

From the sixty survey sites a total of 1588 sherds were recorded, and 1063 sherds were uncovered during excavation of the seven test pits. Within each of the eight attribute categories being analysed in this study, chosen for their utility in revealing manufacturing choices made by individual groups of potters, the observed and expected numbers for each ceramic attribute from the survey and excavation assemblages were calculated (see Chapter 3 for the methodology behind calculating the 'Observed' and 'Expected' values as an integral stage in the Chi Squared statistical test). Where the observed and expected numbers differed greatly a Chi Squared test was carried out to examine whether the difference is likely to have occurred by chance or for a significant reason, such as manufacturing choice (see Chapter 3 for an explanation of attribute category choices; categories are: fabric coarseness, decoration, magnetism, vessel form, rim form, rim diameter, rim thickness, and inclusions).

6.3.1 Surface Vs Sub-Surface Patterning in Fabric Attributes

Fabric Coarseness

Within the fabric coarseness category, the observed number of coarse grained sherds for both excavation and survey assemblages are close to the expected values with a Chi Squared test indicating no patterning of this attribute between the two groups. This suggests coarse grained sherds are present in both the surface assemblages (presumed younger) and the excavated assemblages (presumed older); therefore coarse grained sherds can be considered common in all time periods throughout the study region and may be reflective of the most abundant raw materials, suggesting the local clays derived from the sandstone geology (see Chapter

1) are workable without refinement. However the observed frequency of medium grained ceramics from the excavated assemblage is almost half the expected value, and for survey sites the observed count is substantially higher than expected. Confirmed by a Chi Squared test, this pattern suggests that an increase in the sorting and selective use of medium grained clays may be a more recent phenomenon in the Sesse Islands.

Fine grained clays reveal the most distinct patterning (see Table 6.24); the observed frequency of fine grained sherds in excavation is over double the expected value and conversely the observed count of fine grained sherds on the surface is less than a third of the expected value. The Chi Squared test indicates that this is far from coincidental and the use of fine grained clays is distinctive of older deposits.

Fine Grained Fabrics			
	O	E	Total
Excavation	246	118.6903	**1063**
Survey	50	177.3097	**1588**
Total	**296**	**296**	**2651**

Table 6. 24: Observed (O) and Expected (E) frequencies of fine grained sherds within the excavation and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 1.66E-51)

The prevalence of fine-grained fabrics in lower stratigraphic layers of the excavation trenches at Bukasa 20 and Bubembe 1 has already been discussed in part two of this chapter. With the ubiquitous presence of coarse-grained ceramics throughout the islands at all stratigraphic depths and geographic locations, it is likely that coarse grained clays represent the unrefined/unsorted local raw materials and therefore the decision to sort the clays or selectively use of fine grained fabrics is a manufacturing choice. The association here of medium grained clays with the younger survey assemblages indicates the reverse patterning of the fine-grained ceramics, and perhaps initially naturally sorted fine-grained clay sources were favoured in the early Sesse Island manufacturing traditions, though their exhaustion led to replacement with medium grained clays and inclusions, or a change was made in manufacturing choices to reduce the amount of refinement of the local clays at a later date.

Mineral Inclusions and Grog Tempers

All inclusion counts recorded in this study were high enough for Chi Squared testing to be conducted on all inclusions. Within both the excavated and surface assemblage the observed counts of quartz and feldspar matched the expected counts. Both are a natural element of the local sandstone geology found throughout the islands, albeit in varying proportions. However hematite, mica and rose quartz are decisively associated with the surface assemblage, and limestone/shell and grog are more prevalent in the excavation ceramics. Grog is especially interesting as the observed frequency within excavated ceramics is almost two times the expected value, and within the survey assemblage the grog count is only a quarter of the expected frequency (see Table 6.25).

Grog Inclusions			
	O	E	Total
Excavation	307	162.5819	**2572**
Survey	48	192.4181	**3044**
Total	**355**	**355**	**5616**

Table 6. 25: Observed (O) and Expected (E) counts of grog inclusions in the excavation and survey ceramics from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 2.09E-53)

Fine grained fabrics, which are also been associated with excavation ceramics, have been found to always contain grog during the field study and it may be likely that grog is a necessary addition to increase cohesion between the platelets of the fine grained clays, lending structural integrity without adding unnecessary coarseness (see chapter 8 for further discussion on this). While it was not possible to determine whether the calcareous inclusions in some sherds were limestone or shell, considering the aquatic environment and lateritic geology it is tempting to suggest the inclusion is most likely shell, as the sandstone geology suggests limestone would only be present in imported ceramics. However the low counts of sherds containing limestone may also argue that their rare presence is due to appearance as a seldom imported ceramic.

As well as temporal associations, during the surface ceramic analysis both grog and limestone/shell exhibited locational clustering around sites in central Bukasa; with evidence presented in Chapter 7 suggesting Bukasa 20 may have been operational in a regional trade network which extended to the mainland (see discussion in Chapter 8), it is possible that either limestone/shell-containing ceramics were arriving in low numbers in central Bukasa as an import, or localised ceramic-producing populations in the immediate vicinity of BKS 20 were producing their own ceramics containing limestone or crushed shell, influenced by the observation of ceramic manufacturing techniques conducted by outsider populations through trade. Both hematite and rose quartz indicated some geographic patterning with hematite increasing significantly in more easterly sites and rose quartz associating with the westerly sites closer to the mainland. The natural geology of the mainland and the westernmost islands in the archipelago is more diverse than the remainder of the Sesse Islands, which may explain the increase in Rose Quartz inclusions further west (see Chapter 1). Therefore these differences in inclusions distribution patterning may delineate what Gosselain refers to as "*regional micro-styles*" (Gosselain 1992:560), which change over time as well as space. The increased proportions of hematite in the east may be due to a lack of access to trade goods, leaving an assemblage dominated by ceramics produced from local island resources, with a mineral content rich in hematite.

Magnetism

The trait of magnetism appears superficially to relate to the presence of iron rich inclusions such as hematite within the clay, though levels of magnetism do not directly correspond to levels of hematite occurrence. According to the map of magnetic signatures (see Chapter 6 Figure 6.11), the eastern islands within the archipelago carry a high magnetic signature, whereas the westerly islands and adjacent mainland emit a low magnetic signature. Within the combined survey and excavation assemblages one fifth of the sherds exhibit the ability to be moved or picked up by a magnet. However the observed values for magnetic sherds are lower than expected within the excavated assemblage alone, and the opposite is true for the survey ceramics (see Table 6.26).

Magnetism			
	O	**E**	**Total**
Excavation	124	216.7321	**1063**
Survey	411	318.2679	**1561**
Total	**535**	**535**	**2624**

Table 6. 26: Observed (O) and Expected (E) values of magnetic sherds in the survey and excavations assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 66.60; P-value = 3.17E-16)

This pattern is supported by a Chi Squared test which shows levels of magnetism to increase in the younger sites and decrease with age. This suggests an increased use of either clay sources with naturally high magnetic signatures or the addition of iron rich inclusions during processing of the clay in more recent ceramic manufacturing traditions. Reasons for this are discussed in part two of this chapter, and in chapter 8; potentially as other sources of inclusion or temper (e.g. grog) diminish, experimentation may lead to the introduction of iron rich (and thus magnetic) minerals such as hematite to the clay as an alternative.

6.3.2 Surface Vs Sub-Surface Patterning in Decorative Techniques

An examination of decorative techniques in the surface assemblages in Part 1 of this chapter indicated a prevalence of CWP and grass decorations in the easternmost sites of the archipelago, and an overrepresentation of TGR decorations in the west, which appears to be a result of trade with mainland populations utilising the TGR decoration (see Chapter 8 for discussion). The patterning of decorative techniques in the excavation assemblages (see Part 2 of the current chapter) suggested that while at BKS 20 incidences of stylus and comb decorations increased with age, elsewhere stylus decorations were found throughout the ceramic assemblages, regardless of age. A variety of rouletted decorations associated more strongly with the younger assemblages (KPR, CWR, clay roulette, CWP).

The results of a Chi Squared test are considered unreliable if any expected value falls below 5, and amongst the decorative techniques within the study region low counts exclude an examination of finger, circular tool, metal bracelet, drill, stick, and clay (appliqué) decorations from the analysis. These infrequent decorative techniques were grouped and tested to see if there is any patterning to suggest a wider range of these rare decorative techniques associate with older or younger sites. The results indicate that the observed and expected values equate for both the excavation and surface assemblages, suggesting a similar presence of unique/rare decorative techniques through time. This may imply that potters can experiment with decorative tools at any time. The remaining decorative techniques were subject to Chi Squared testing with results indicating that KPR, Cord Wrapped Paddle, TGR, CWR, grass and clay roulette decorations are more associated with the perceived younger survey sites, whereas only comb and an absence of decoration are over-represented in the excavated assemblage. The only decorative technique to exhibit an even presence in both collections, and therefore a universal presence through time in the Sesse Islands, is stylus. This is illustrated in the bar chart in Figure 6.62, which compares the percentage representation of each decorative technique between the survey and the excavation assemblages (see Figures 6.63 – 6.69 for examples of each decorative technique).

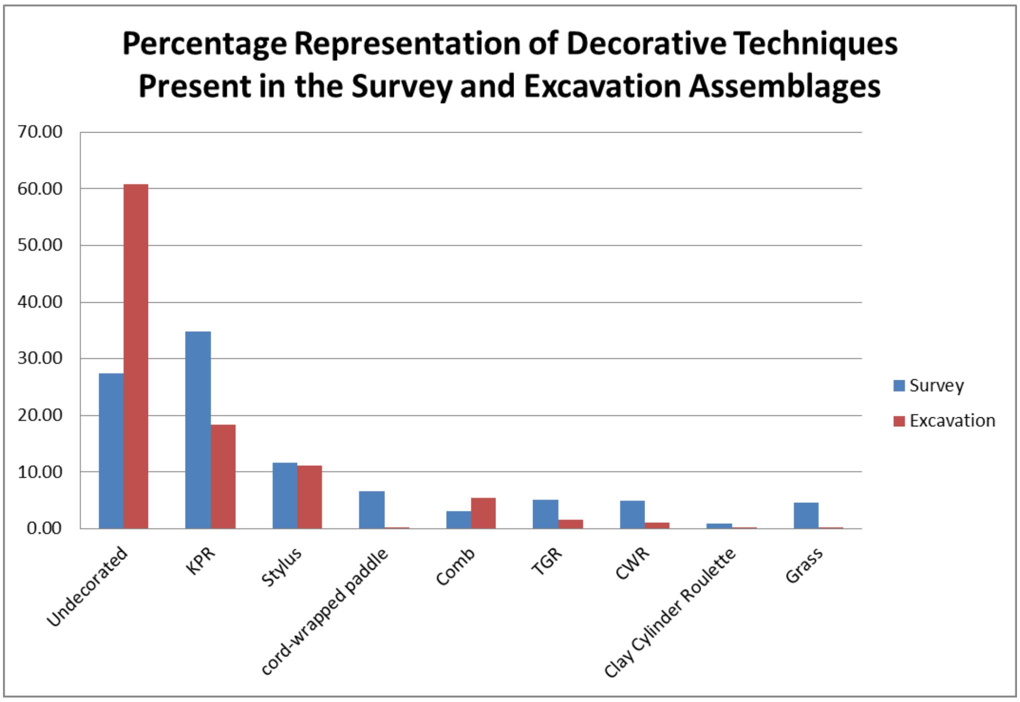


Figure 6. 62: Percentage presence of major decorative techniques within the survey and excavation assemblages from Bubembe, Bukasa and Bubeke

Figure 6. 63: KPR decoration

Figure 6. 64: Cord-wrapped paddle decoration

Figure 6. 65: TGR decoration

Figure 6. 66: CWR decoration

Figure 6. 67: grass decoration

Figure 6. 68: clay cylinder roulette decoration

Figure 6. 69: comb decoration

This information is interesting; roulette decorations have previously been taken as distinctive of younger sites from the early second millennium AD onwards, based on dated sites in Western Uganda such as Bigo, where roulette first appeared in the Ugandan ceramic sequence (Reid 1994/5; Reid 1996; Ashley 2005; Ashley and Reid 2008; Phillipson 1977; 1993; Posnansky 1961a; Robertshaw and Kamuhangire 1996).Whilst I argue against projecting specific dates for decorative techniques based on one or two isolated sites across the region (see Chapter 3), the fieldwork data from the Sesse Islands does support the notion that the use of roulette decoration signifies younger sites. Recent evidence within the Great Lakes region from Rwanda also gives an 11th-13th C AD dates for rouletted ceramics (Giblin 2013), though earlier dates for roulette decorations in the Great Lakes region may still be uncovered, as elsewhere in Africa roulette decorations are dated as far back as the third millennium BC (Haour et al. 2010).

More telling in regards to former typological models for the lake basin is the lack of patterning in the temporal distribution of stylus decorations. Previously stylus incisions have been taken as diagnostic traits of EIA and 'transitional' sites (Posnansky 1967; Ashley 2005; 2010; see Chapter 2); however the fieldwork results here indicate that stylus decorations are as prevalent on the surface as they are in excavated contexts. This is unsurprising if we consider the simple nature of the tools used to create such designs. Gosselain's ethnographic research on the Bantu Bafia potters in Cameroon indicates that decorative tools are produced by the potters themselves, and tools which require specialist manufacturing techniques such as carved wooden roulettes are more likely to change or be removed from the sequence as manufacturing knowledge of the tool changes or dies out (Gosselain 1992). Whilst the earlier comb and later roulette decorations require some skill and knowledge to produce a workable tool, a stylus (as a simple pointed instrument) is the easiest tool to produce with little to no manufacturing knowledge and is therefore most likely to persist through time rather than signify stylistic change in its presence or absence, as purported in previous ceramic typologies.

6.3.3 Surface Vs Sub-Surface Patterning in Rim Form Attributes

Vessel Forms

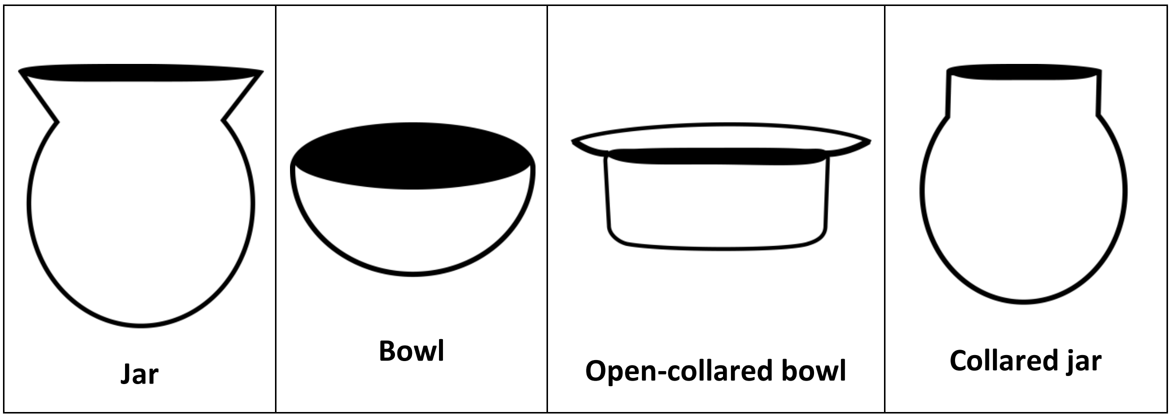


Figure 6. 70: Illustrations of vessel forms encountered during fieldwork

Figure 6.70 illustrates the vessel forms recorded from both the survey and excavation assemblages. Note that while complete vessels are depicted, in most cases full vessel form was estimated based upon the rim and neck of the fragmented sherd with complete vessels very rare in this study. Bowls are the most common form, with counts of collared jar and tobacco pipe providing expected values too low for further significance testing. The results of a Chi Squared test on the remaining vessel forms indicates that jars are more prevalent at older sites, whilst open-collared bowls are almost exclusively associated with younger surface collections, with 98% of all examples derived from the surface assemblage (see Tables 6.27 and 6.28) . Bowls are equally represented in both surface and excavation assemblages; this is unsurprising as bowls are the most versatile vessel form, with open versions allowing a different range of functions to closed bowls. From a functionalist perspective jars are more suited to carrying liquids as the flared mouth assists pouring and the restricted neck prevents spillage (Ashley 2005).

Jar Vessel Form			
	O	**E**	**Total**
Excavation	55	38.29161	**104**
Survey	195	211.7084	**575**
Total	**250**	**250**	**679**

Table 6. 27: Observed (O) and Expected (E) counts of jar rims in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 8.61; P-value = 0.003345)

Open-collared bowl Vessel Form			
	O	**E**	**Total**
Excavation	1	7.045655	**104**
Survey	45	38.95434	**575**
Total	**46**	**46**	**679**

Table 6. 28: Observed (O) and Expected (E) counts of open-collared bowl rims in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 6.13; P-value = 0.013322)

From the survey data alone, spatially there was no correlation between the percentage of jars and location due to low rim sherd counts at individual survey sites. This comparison of surface to sub-surface ceramics suggests a greater need for jars (and the use of liquids) at older sites, though at this stage the reason for the greater numbers of jars cannot be determined. Open-collared bowls are a unique vessel from, and their abundance on the surface could be related to specialised uses related to a socio-economic change in more recent times, or a change in the local ceramic manufacturing tradition which favoured the introduction of this vessel form. The presence of open-collared bowls at both Bubeke 7 and Namusenyu on the northern lakeshore is discussed in chapter 8, and results appears to indicate a direct interaction between the two sites, as this unique vessel form and the associated CWP decorative technique frequently applied to it are both favoured these two sites.

Rim Form Groups

The majority of individual rim forms occurred in numbers so low the expected frequencies were too small for significance testing. However the rims were tested as agglomerated manufacturing groups (everted, thickened, and simple), and the following rims were numerous enough for a full analysis: EvGr1, EvGr2, EvGr3, EvGr4, and ThGr3. Everted rims, which are defined as having an inflection with a profile which can be either thickened or un-thickened, show an association with the excavated ceramics. In contrast thickened rims are a more recent innovation, with only half the expected value appearing within the excavation contexts. Simple rims have a strong affinity with the sub-surface ceramics, appearing almost three times as frequently as expected (see Table 6.29).

Simple Rims			
	O	**E**	**Total**
Excavation	21	8.151026	**109**
Survey	30	42.84897	**573**
Total	**51**	**51**	**682**

Table 6. 29: Observed (O) and Expected (E) counts of simple rims in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 24.11; P-value = 9.11E-07)

Amongst the individual rim forms which were numerous enough for Chi Squared testing, EvGr2 (flared and externally thickened profile) and EvGr3 rims (flared and un-thickened) are associated with excavated contexts (see Tables 6.30 and 6.31, and Figure 6.71). ThGr3 (closed and externally thickened) and EvGr4 (flared and both internally and externally thickened) rims associate strongly with the surface assemblage (see Tables 6.32 and 6.33, and Figure 6.72), with EvGr4 rims almost completely absent from excavated contexts and ThGr3 rims at a third of the expected number within the excavated assemblage.

EvGr2 Rims			
	O	**E**	**Total**
Excavation	23	14.22434	**109**
Survey	66	74.77566	**573**
Total	**89**	**89**	**682**

Table 6. 30: Observed (O) and Expected (E) counts of EvGr2 rims (statistically associated with excavated assemblages) in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 6.44; P-value = 0.01113)

EvGr3 Rims			
	O	**E**	**Total**
Excavation	29	12.14663	**109**
Survey	47	63.85337	**573**
Total	**76**	**76**	**682**

Table 6. 31: Observed (O) and Expected (E) counts of EvGr3 rims (statistically associated with excavated assemblages) in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 27.83; P-value = 1.32E-07)

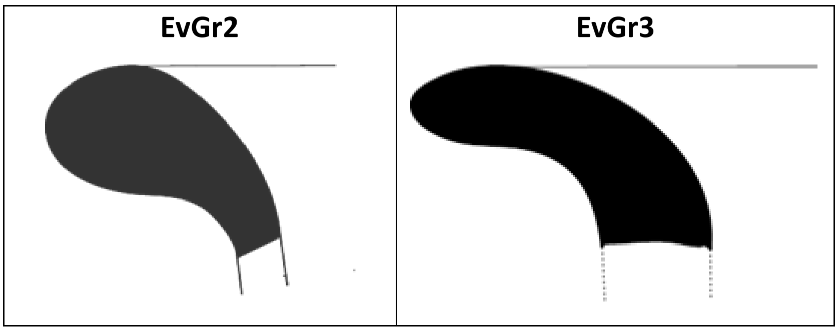


Figure 6. 71: The EvGr2 and EvGr3 rim profiles which are found more frequently in excavation assemblages than on the surface

EvGr4 Rims			
	O	E	Total
Excavation	2	11.18768	**109**
Survey	68	58.81232	**573**
Total	**70**	**70**	**682**

Table 6. 32: Observed (O) and Expected (E) counts of EvGr4 rims (statistically associated with survey assemblages) in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 8.98; P-value = 0.00273)

ThGr3 Rims			
	O	E	Total
Excavation	11	36.91935	**109**
Survey	220	194.0806	**573**
Total	**231**	**231**	**682**

Table 6. 33: Observed (O) and Expected (E) counts of ThGr3 rims (statistically associated with survey assemblages) in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi value = 3.84; actual Chi-value = 21.66; P-value = 3.26E-06)

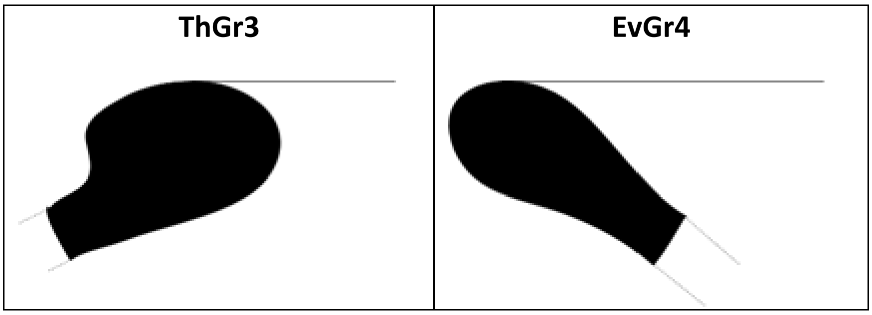


Figure 6. 72: The ThGr3 and EvGr4 rim profiles which are found more frequently in survey assemblages than on the surface

EvGr1 rims were also tested, and although they are most commonly found on open-collared bowls (which are associated with surface assemblages), differences between the observed and expected values are too low for a depth association to be ascribed to the rim. The association of everted rims, characterised by EvGr2 and EvGr3 profiles, matches the association of jars with excavated contexts. Whilst thickened rims are more prevalent in the surface assemblage (see Table 6.34), this only refers to thickened bowls and not everted rims with thickening; thickened everted rims forms are show to associate with both surface contexts (in the case of EvGr4) and excavation contexts (EvGr2 rims). Simple rims are much less frequent overall than everted or thickened rims, but contribute a greater proportion overall to the excavation assemblage than the survey assemblage (see Figures 6.73 and 6.74).

Thickened Rims			
	O	**E**	**Total**
Excavation	24	49.8651	**109**
Survey	288	262.1349	**573**
Total	**312**	**312**	**682**

Table 6. 34: Observed (O) and Expected (E) counts of thickened rims in the excavations and survey assemblages from Bubembe, Bukasa and Bubeke (critical Chi-value = 3.84; actual Chi-value = 15.97; P-value = 6.4E-05)

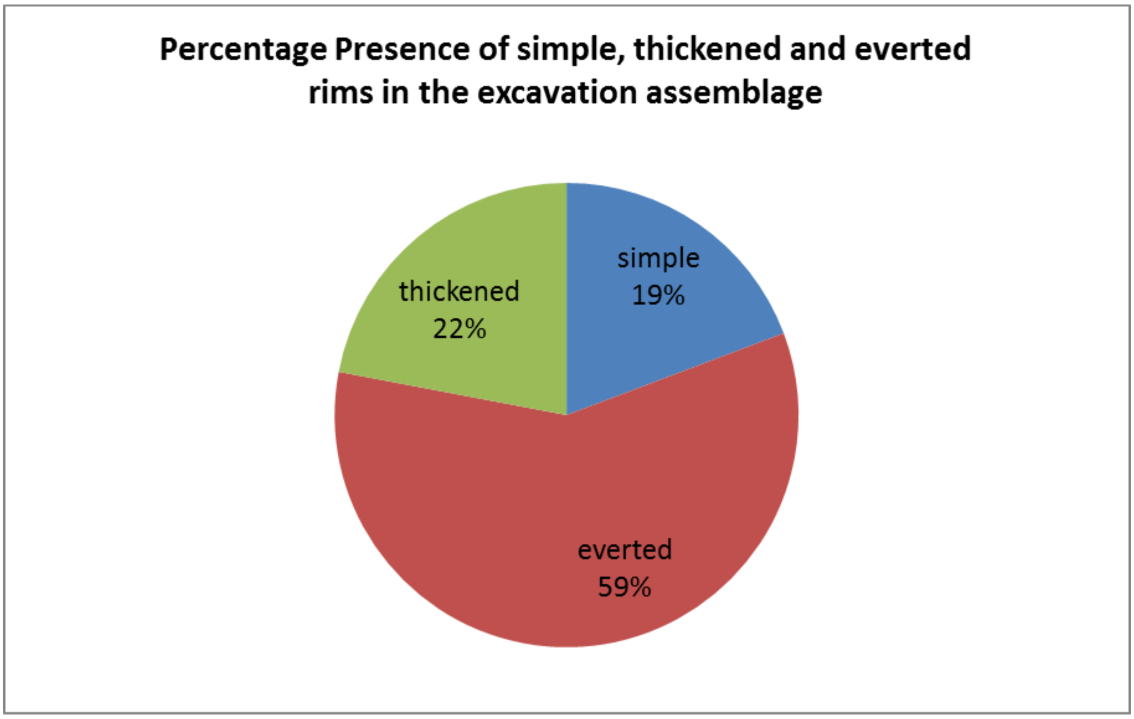


Figure 6. 73: relative percentages of simple, thickened and everted rims in the <u>excavation</u> assemblage (n=109)

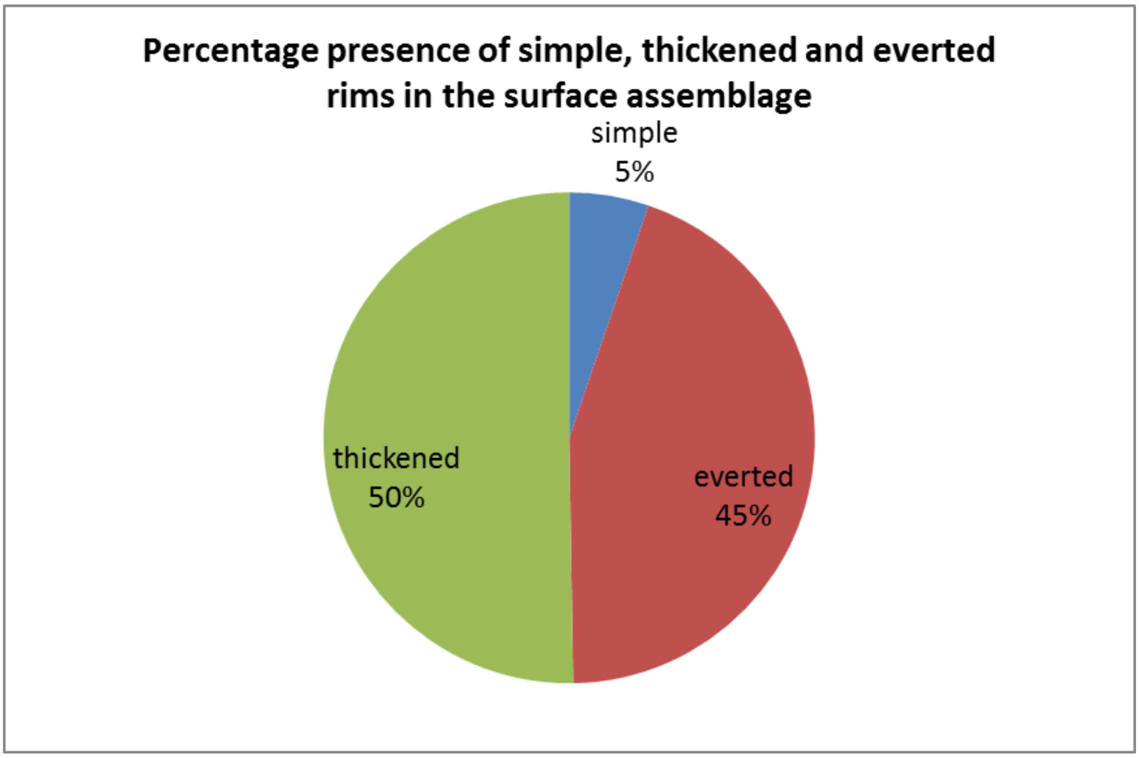


Figure 6. 74: relative percentages of simple, thickened and everted rims in the survey assemblage (n=573)

Rim Diameter Groups

Seven rim diameter groups have been recorded based on natural groupings within the rim diameter readings (see Chapter 3 Figure 3.4 and Table 3.1 for establishment of groups). RD1 rims (1-9cm) have too low an expected frequency for significance testing. Of the remaining rims, smaller RD2 (10-13cm) and RD3 (14-18cm) sizes are frequently overrepresented in the excavation contexts, which feature almost four times the expected number of RD2 vessels and almost three times the expected number of RD3 rims. RD4 rims (19-23cm) indicate no preference in patterning, appearing at the expected frequencies in both survey and excavation ceramics. In the large to very large size categories (RD5 (24-27cm), RD6 (28-31cm), and RD7 (32-42cm)), there is an almost exclusive association with surface contexts. These results indicate that medium RD4 vessels have been used throughout time, but at older sites there was a prevalence of smaller vessels and in younger assemblages large vessels were more common. This is exemplified in Figure 6.75 which graphs the difference between observed and expected frequencies for rim diameters within the excavation assemblage.

There may be several reasons for this depth patterning; one explanation propagated in previous research (Ashley 2005; 2010) is an increase in communal feasting at the younger sites, hence the need for larger cooking and serving vessels. However Dietler and Herbich's (1989) ethnographic study of the Luo on the eastern shores of Lake Victoria indicates little correlation between vessel diameters and social group size. Other possible explanations could be that improved subsistence technologies developed over time produce greater yields with an increased need for storage, or perhaps increasing environmental instability required a greater need for the storage of food and water surpluses; although Lake Victoria is a highly accessible source of fresh water, some sites are 1-2km away from the lakeshore and almost all sites are located on or near hilltops with access to the lake involving traversing steep hill-slopes, hindering the daily transportation of water to and from the lake. Furthermore, the collection and use of rainwater would be a healthier and less disease-ridden alternative to consuming untreated lake water. Alternately earlier ceramicists may not have possessed the technological knowledge to produce and fire larger vessels without cracking and spalling.

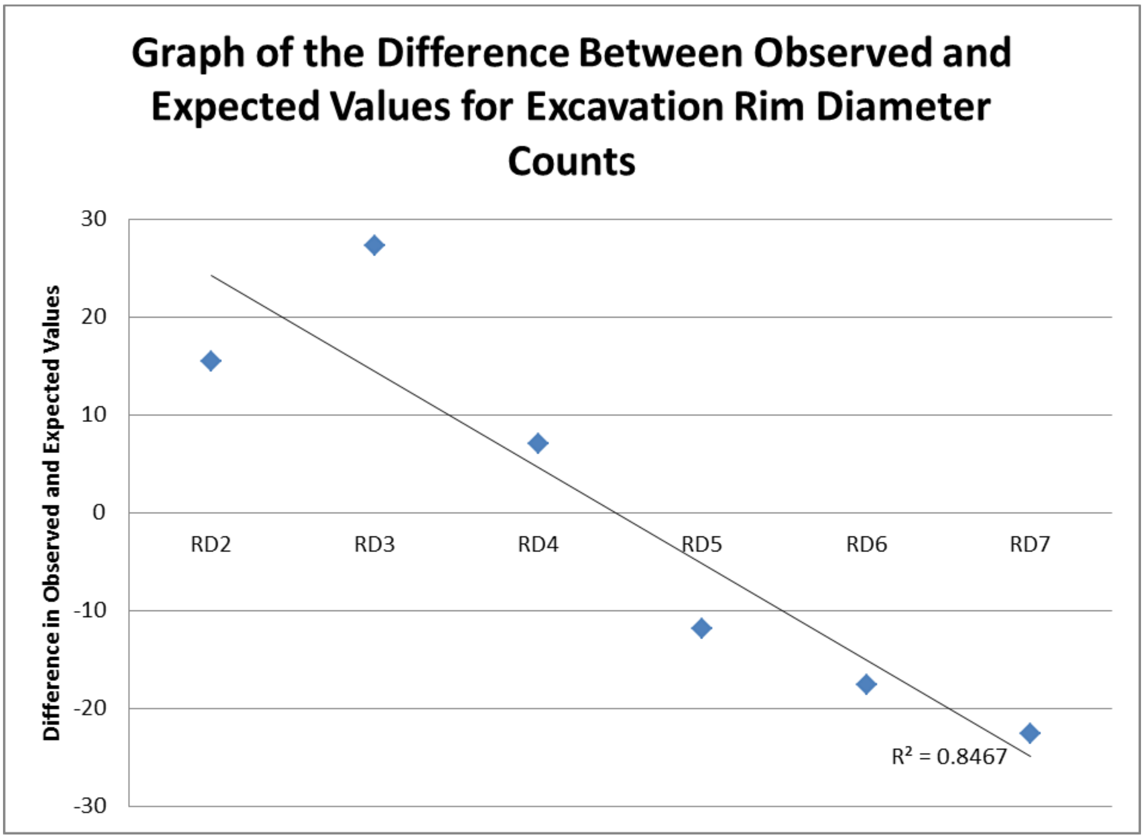


Figure 6. 75: Differences between expected and observed frequencies of different rim diameter groups within the excavation assemblage (n=112)

Rim Thickness Groups

Seven rim thicknesses were also recorded in the assemblages, based on natural clustering within the rim thickness data (see Chapter 3 Figure 3.5 and Table 3.2 for establishment of these groups). Only the thickest RT7 group (3-4cm) produced expected frequencies too low for significance testing. The results of the Chi Squared test on the remaining data mimic the rim diameter size patterning, with thinner RT1 (0.1-1cm) and RT2 (1.1-1.3cm) rims occurring significantly more frequently than expected in the older assemblages whereas the opposite is true for thick to very thick RT4 (1.7-1.9cm), RT5 (2.0-2.2cm) and RT6 (2.3-2.9cm) rims, which feature more abundantly in surface collections (see Figure 6.76). Medium RT3 rims (1.4-1.6cm) are equally represented in both surface and excavated contexts. Therefore over time ceramic rims appear to have become increasingly thickened, which correlates with the association between simple (un-thickened) rims and excavated contexts, and thickened rims and surface contexts. There is no ethnographic data to suggest this thickening is functional, with Gosselain's ethnographic study of the Bafia in Cameroon suggesting that rim morphology may be a "stylistic expression" which can mark regional differences between potting groups on a macro or micro-scale (Gosselain 1992), and theoretically could mark change in potting traditions over time within an archaeological scenario.

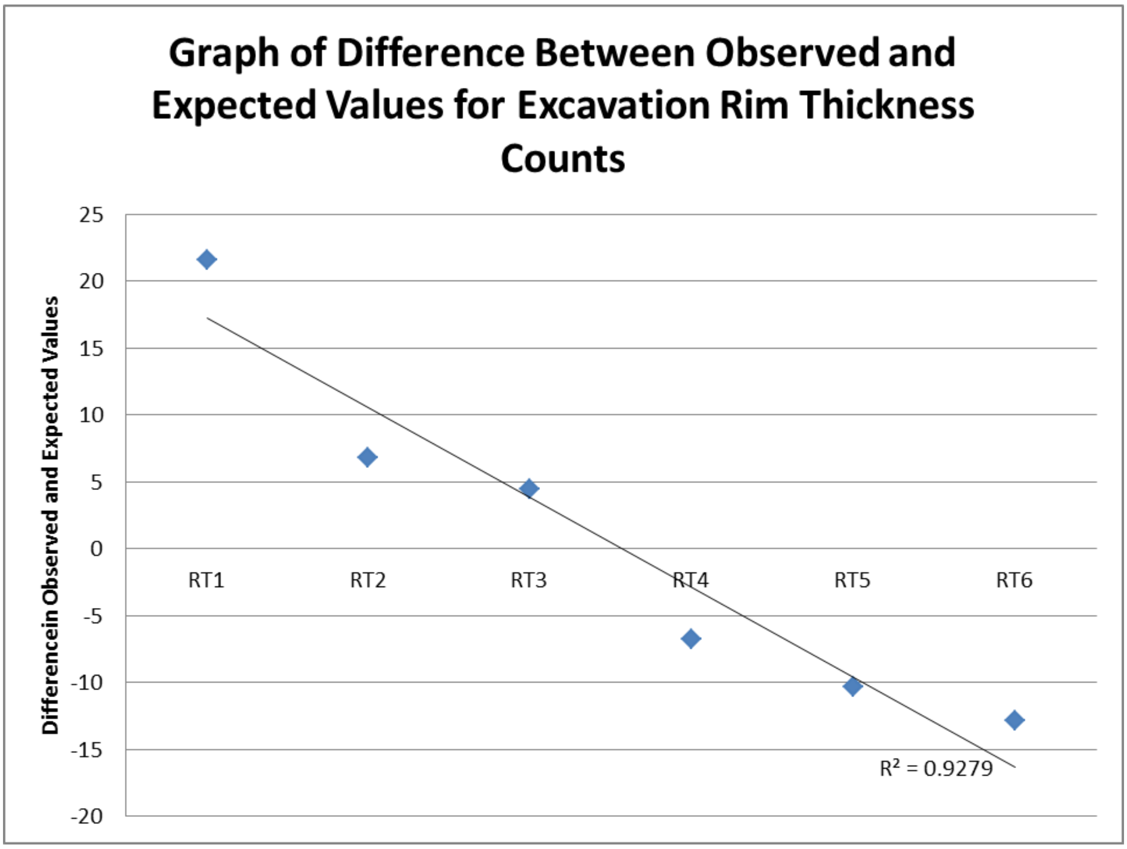


Figure 6. 76: Differences between expected and observed frequencies of different rim thickness groups within the excavation assemblage (n=104)

6.3.4. A Discussion of Ceramic Patterning in Surface and Excavated Assemblages

Testing the difference between surface survey ceramics and sub-surface excavation ceramics has yielded several patterns which suggest general temporal differences in ceramics localised to the Sesse Islands. It appears that older assemblages are more likely to contain un-magnetic fine grained fabrics containing a higher proportion of grog and limestone/shell than the younger assemblages. Older vessels are also more frequently decorated with comb or left undecorated. These patterns are supported from the excavation analysis at BBK 1 and BKS 20. These older collections also have heightened quantities of jars with EvGr2 and EvGr3 rims, with bowls more often constructed with simple rims than in the younger assemblages. Generally, with time vessels have increased in both rim diameter and thickness. Previously based on the analysis of individual excavated site assemblages little information could be deduced on the change in rim form attributes over time, due to low rim sherd counts within the different stratigraphic layers of excavation. However here through a comparison of the amalgamated excavation ceramics with the surface remains, we can ascertain basic patterning in the change of rim forms over time.

It is important to remember however that although these attributes appear more commonly than expected in the older assemblages, they are not completely absent from the younger surface assemblages and equally the traits associated most strongly with surface collections –medium grained fabrics, magnetic fabrics, hematite, mica and rose quartz inclusions, open-collared bowls, a range of rouletted and grass decoration, ThGr3 and EvGr4 rims, and larger rim thicknesses and rim diameters – are not absent from excavated contexts, they are simply less common. A change in ceramic manufacturing techniques does not necessarily mean eradication of older techniques and therefore sites cannot be ascribed an age simply based on the presence/absence of certain attributes but rather on the varying proportions of the different attributes over time. This is a fundamental problem with previously ceramic typologies employed in the region, which are based solely on the presence/absence of certain traits as a chronological indicator (e.g., more jars than bowls, stylus decorations, the presence of specific rim forms), as they ignore the presence of other contemporary ceramic traits which would also be considered diagnostic of later or earlier sites within the typological sequence. Furthermore, several ethnographic studies of ceramic production within east and central African populations indicate that several seemingly distinct ceramic attributes may exist contemporaneously but exclusively from one another in differing social groups (Gosselain 1992; 2000; Dietler and Herbich 1989). It appears we need to instead study the proportions of attributes within an assemblage to gauge both temporal and spatial distinctions.

This chapter has successfully identified spatial patterning (Part 1) and temporal patterning (Parts 2 and 3) in ceramic attributes throughout the Sesse Islands. However the islands are part of the wider Lake Victoria basin, and cannot be analysed purely in isolation. As part of a wider sphere of lacustrine activity, the island populations may potentially have been interacting with the nearby populations of the mainland lakeshore. Furthermore, the scale of this interaction may vary throughout the islands, with some social groups privy to direct and marinated interaction, through trade routes or proximity to major regional sites of cult activity, and other island populations may have been comparatively isolated from these mainland visitors. As ceramics often form the only body of archaeological material from sites in the Lake Victoria basin, it is important to consider how similarities and differences in the ceramics present at sites throughout the region may indicate different levels of interaction and isolation different populations around the lake.

Chapter 7: Analysis of Ceramics from Island and mainland Comparative Sites

Secondary data from sites around the lakeshore and on other islands was deemed necessary to understand how new ceramics emerging from the primary fieldwork fit into an overall regional sequence, and to assess whether the benefits of the attribute-based analysis outweigh the direct application of older ceramic typologies throughout the region. The acquisition of temporally relevant comparative ceramics was limited to the availability of ceramic collections within the storerooms of the Uganda Museum in Kampala. As a result, fourteen ceramic assemblages collected by previous researchers were re-analysed under the new methods proposed in this study, and the results compared with the excavated fieldwork assemblages from Bubembe, Bukasa, and Bubeke. Subsequently, to examine differences between island and mainland traditions in the Lake Victoria basin ceramic assemblages from the islands were grouped (the excavated fieldwork collections, the re-analysed collections from Bugala, and the assemblage from Lolui) and compared to the amalgamated ceramics from all mainland sites (Sanzi, Nsongezi, Kansyore, Hippo Bay Cave, Namusenyu, Buloba Hill, and Luka). The excavated fieldwork assemblages were also compared to the ceramics from Bugala Island (Lutoboka, Golwe, Sozi, Kasenyi Bumangi, Malanga Lweru, and Entebezamikusa) to identify any regional patterning in attributes within the archipelago.

It is important to bear in mind that some of the collections were incomplete, as parts of the collection may be held abroad at other museums and institutions, or may simply be inaccessible and hidden in the poorly organised store rooms of the museum. The collections of Lolui Island and Sozi are known to be much larger than listed in this chapter (Posnansky 1967; Ashley 2005; 2010); however these are all the sherds that could be recovered from the Uganda Museum storeroom and hence Lolui and Sozi will not be subject to further analysis. While the assemblages from the other comparative sites are large enough to provide a sample of the ceramics present within the collection, there is no guarantee that the entire collection is present as records in the Uganda Museum storerooms do not detail the full extent of the collections from each site, and often site assemblages were found spread in different holding areas of the storeroom. Furthermore there is inadequate contextual data for how the location of the sherds from each site relate to depth; therefore as an alternative to examining each site individually analysis will focus on a comparison between total collections from the fieldwork sites and the comparative collections from elsewhere in the lake basin to establish how internal diversity within the Sesse Islands compares to mainland sites, and whether patterns elucidate locales of greater trade interaction as well as the existence/non-existence of contemporary social boundaries across the Great Lakes region.

Table 7.1 lists the fourteen sites from around the lake basin, with their dates where available (based on the radiocarbon dating of context layers), and whether the site is located in the island or on the mainland (note that all dates in Table 7.1 have been standardised to BP where possible). The sites have been ranked in date order in Table 7.1; 'proxy-dated' sites had been ascribed dates in previous publications solely based on ceramic typologies, and so these potentially erroneous proxy dates have been disregarded to avoid confusion in the current study.

Site	Date	Island/Mainland	Total Sherds	Reference
Entebezamikusa	1890±60 b.p.	Island	271	Ashley 2005
Malanga Lweru	1470±60 b.p.	Island	685	Ashley 2005
Sanzi	1350±40 b.p.	Mainland	1972	Ashley 2005
Lutoboka	1130±35 b.p. and 1320±50 b.p.	Island	119	Ashley 2005
Nsongezi	11th century AD	Mainland	239	Pearce and Posnansky 1963; Crane and Griffin 1962
Hippo Bay Cave	2750±60 b.p. and 510± 80 b.p.	Mainland	890	Brachi 1960; Stuiver et al. 1960; Ashley 2005
Kansyore Island	proxy-dated LSA-EIA	Mainland	273	Chapman 1967
Luka	proxy-dated EIA	Mainland	186	Ashley 2005; 2010
Lolui Island	proxy-dated EIA - transitional	Island	23	Posnansky et al. 2005
Sozi	proxy-dated transitional	Island	32	Ashley 2005
Kasenyi Bumangi	proxy-dated transitional	Island	89	Ashley 2005
Buloba Hill	proxy-dated transitional	Mainland	1138	Ashley 2005
Namusenyu	proxy-dated EIA-LIA	Mainland	442	Ashley 2005
Golwe	proxy-dated LIA	Island	293	Ashley 2005

Table 7. 1: a table of comparative sites re-analysed in this study. 'Proxy-dated' sites have been dated using ceramic typologies in the absence of radiocarbon dates (see references provided)

Chapter 2 (sections 2.6, 2.7 and 2.8) describe these sites in more detail, listing all textual references and detailing both the calibrated and un-calibrated dates where available (provided for Malanga Lweru, Sanzi, Lutoboka, and Entebezamikusa). However here I will provide a summary of the key factors of each site, which are subsequently located on the map in Figure 7.1 (see Chapter 1 Figure 1.3 for location of the sites on a geological map):

- Of the dated sites **Entebezamikusa** is the oldest, located on Bugala Island with the radiocarbon determinant placing it in the EIA (Ashley 2005).
- **Malanga Lweru,** also located on Bugala Island, is dated a few hundred years younger than Entebezamikusa though also part of the EIA. The site is believed to have been involved in regional trade networks from the presence of snapped cane glass beads (Ashley 2005).
- **Sanzi,** located on the northern lakeshore, is dated to the mid first millennium AD, placing it in the EIA (Ashley 2005).
- **Lutoboka** is located on the northern shore of Bugala Island and dated to the beginning of the second millennium AD, which chronologically posits the site in the 'Transitional' period between the EIA and LIA (Ashley 2005).
- **Nsongezi,** also dated to the intermediate period at the beginning of the second millennium, is located on the Kagera river in south-western Uganda (the site is considered part of the mainland assemblage rather than associated with the Lake Victoria body of water). The presence of EIA 'Urewe' ceramics, stone tools, and a possible LSA Kansyore ceramic has led researchers to consider this date as terminal for the EIA (Pearce and Posnansky 1963; Posnansky 1961a; 1961b; 1967; Phillipson 1977; Crane and Griffin 1962; Nelson and Posnansky 1970; Cole 1967).
- **Hippo Bay Cave** has two radiocarbon dates, one which places it in the LSA, and one in the mid-second millennium AD. However the earlier date has been disregarded as erroneous, leaving a date of the late 15th/early 16th century AD for the site (Ashley 2005; Ashley and Reid 2008; Karega-Munene 2003).
- **Kansyore Island,** located adjacently to Nsongezi on the Kagera river in south-western Uganda is thought to be the oldest site in the region based on the presence of LSA and EIA ceramics in what appears to be a continual occupation;

however the mixed stratigraphy at the site has made it impossible for any absolute dates to be obtained (Chapman 1967; Phillipson 1977).

- **Luka,** located on the northern lakeshore, has been provisionally dated to the EIA based on the presence of Urewe ceramics at the site (Ashley 2005; 2010).
- **Lolui Island,** located in the east of the lake far from the Sesse archipelago (see Figure 7.1), has been ascribed a preliminary EIA to transitional date, based on the presence of 'Urewe' and 'Transitional Urewe' ceramics in its assemblages (Posnansky et al. 2005).
- **Sozi** and **Kasenyi Bumangi** are both located on Bugala Island, and have been dated provisionally to the intermediate period, based on the 'Transitional Urewe' rim forms and incised decorative techniques identified at the sites (Ashley 2005).
- **Buloba Hill** on the northern lakeshore has been proxy dated to the 'Transitional' period due to the presence of 'Entebbe Ceramics' in the surface assemblage, which are similar to examples found at Malanga Lweru on Bugala Island and are presumed to appear in the terminal 'Transitional' phase (Ashley 2005; 2010).
- **Namusenyu,** a rock shelter on the northern lakeshore, has been given a proxy date from the EIA to the historic period due to the presence of both 'Urewe' sherds and cord-wrapped paddle sherds (referred to by the excavator as 'stone impressed'). These two decorative techniques were found in the same layer, suggesting a post-depositional mixing of two discrete phases of occupation (Reid 2003b; Ashley 2005; 2010).
- **Golwe,** also located on Bugala Island, has been ascribed a Late Iron Age date due to the high proportion of KPR (knotted strip roulette) decorations in its assemblage (Ashley 2005).

Figure 7. 1: Locations of comparative sites analysed in this chapter

We can ascertain from Table 7.1 that only six of the Lake Basin sites have been radiocarbon dated. Three of these dates are from the Early Iron Age, two from the 'Transitional' period, and one from the Late Iron Age. Based upon this sparse number of dates, decorative tool, rim form, and base form similarities between ceramics from undated sites and the six dated sites have led previous researchers to ascribe a 'proxy-date' to the eight other sites in the table. Additionally, dates for EIA assemblages from ceramic sequences as far away as western Kenya, northern Tanzania and Rwanda, located 500km from the Uganda sites, have been applied to sites on the lakeshore which bear decorative, rim, or base form similarities. Chapter 3 highlights this problem of assuming chronological periods for undated sites based on similarities with dated ceramic assemblages from other locales which may not be related, and Chapter 8 discusses this further in light of the new information recorded from the fieldwork sites in the Sesse Islands.

7.1 Fabric Analysis

7.1.1 Fabric Coarseness: Individual Site Comparison

In an analysis of the ceramic attributes from the individual mainland and island sites (including both comparative and fieldwork sites), only four stood out with distinctive patterns in the fabric coarseness data. On a regional scale, BBK 1 and BKS 20 both remain overwhelmingly associated with fine grained ceramics; on average only 1.20% of the ceramics from the comparative site assemblages are constructed from fine grained fabrics, whereas from the excavation trench and surface collections at BBK 1 47.06% of the ceramics are fine grained, and from BKS 20 the ratio is 40.20%. Based on an index of their assemblage sizes and the average proportion of fine grained sherds recovered from other site assemblages around the lake basin, BBK 1 exhibits ten times the 'expected' percentage of fine grained sherds, and BKS 20 has eight times the expected number (see Tables 7.2 and 7.3), with a subsequent Chi Squared test on the data confirming fine grained fabrics to be a peculiarity specifically associated with these two sites.

BBK 1			
	O	**E**	**Total**
Coarse	47	67.19924969	**3161**
Medium	34	78.53022093	**3694**
Fine	72	7.270529387	**342**
Total	**153**	**153**	**7197**

Table 7. 2: Observed (O) and Expected (E) values for fabric coarseness from BBK 1 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 607.61; P-value = 1.1469E-132)

BKS 20			
	O	**E**	**Total**
Coarse	170	179.197999	**3161**
Medium	74	209.413922	**3694**
Fine	164	19.3880784	**342**
Total	**408**	**408**	**7197**

Table 7. 3: Observed (O) and Expected (E) values for fabric coarseness from BKS 20 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 1166.67; P-value = 4.5853E-254)

Both Kansyore and Nsongezi emerge with a distinct association to medium grained fabrics; in fact, 100% of the ceramics from Kansyore and all but one of the sherds from Nsongezi (99.59%) were constructed from medium grained clays. Regionally the average proportion of medium grained fabrics per site assemblage is 51.33%, yet both Kansyore and Nsongezi contain twice the expected amount of medium grained sherds based upon these figures (see Tables 7.4 and 7.5). This is very interesting, as within the fieldwork study on the Sesse Islands fine grained pastes were associated with older sites, though it was hypothesised that this may be affected spatially by resource availability. Alternately medium grained clays had a proven association with younger sites. Kansyore and Nsongezi have been ascribed disparate dates, with Kansyore assumed to be occupied from the Late Stone Age to the Late Iron Age (second millennium AD) based upon decorative techniques present within the assemblage (Chapman 1967), and Nsongezi radiocarbon dated to the Transitional period/beginning of the Late Iron Age (see Table 7.1) though the presence of stone tools suggests an earlier date which would be comparable to Kansyore. Both sites contain ceramics constructed from only one fabric coarseness, which is unique and may suggest patterning in the raw materials available considering the proximity of the two sites and distance from the other analysed sites (see the map in Figure 7.1). In the geological map (Chapter 1 Figure 1.3) both Kansyore and Nsongezi are located in the Buganda Group formation characterised by slate, phyllite, mica schist, and metasandstone. Though this geological formation covers a large portion of the western lakeshore and mainland, Kansyore and Nsongezi are the only sites located solely within this geological zone; on the northern lakeshore where other comparative sites lay adjacent to the same geology, other geological formations also overlap providing a wider range of resources to choose from.

Kansyore			
	O	E	Total
Coarse	0	121.222176	**3161**
Medium	276	141.662359	**3694**
Fine	0	13.1154648	**342**
Total	**276**	**276**	**7197**

Table 7. 4: Observed (O) and Expected (E) values for fabric coarseness from Kansyore when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 261.73; P-value = 1.46625E-57)

Nsongezi			
	O	E	Total
Coarse	1	106.28901	**3161**
Medium	241	124.2112	**3694**
Fine	0	11.499792	**342**
Total	**242**	**242**	**7197**

Table 7. 5: Observed (O) and Expected (E) values for fabric coarseness from Nsongezi when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 225.61; P-value = 1.023E-49)

7.1.2 Fabric Coarseness: Regional Comparison

Significance testing of the fabric coarseness frequencies between the mainland collections and the island assemblages indicates that island ceramics in general contain a greater proportion fine and coarse grained fabrics, whereas medium grained clays are more prevalent in mainland assemblages. These varying proportions are indicated in Figures 7.2 and 7.3.

Not only does fabric coarseness show patterning in terms of differences between island and mainland societies, but patterning also exists on a more local scale between Bugala Island and the fieldwork sites on more easterly islands (see Figure 7.4). Within the Sesse Islands both medium and fine grained fabrics appear in greater proportions within the fieldwork assemblages further east in the archipelago, whereas the amalgamated Bugala Island assemblage contains a greater percentage of coarse grained fabrics than the fieldwork ceramics.

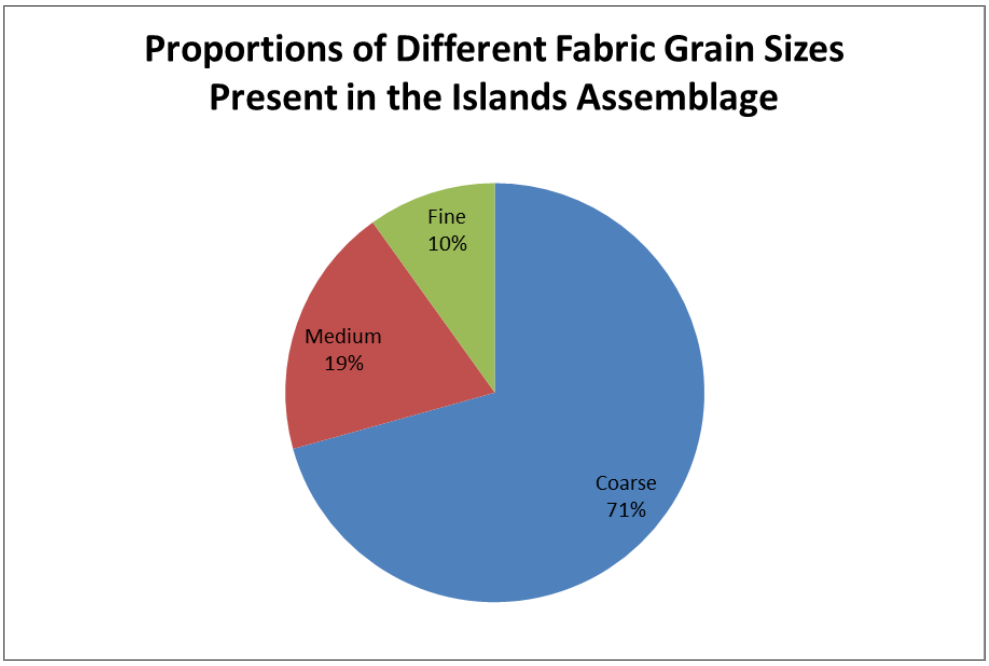


Figure 7. 2: the fabric grain size composition of the amalgamated island assemblages (n=3120)

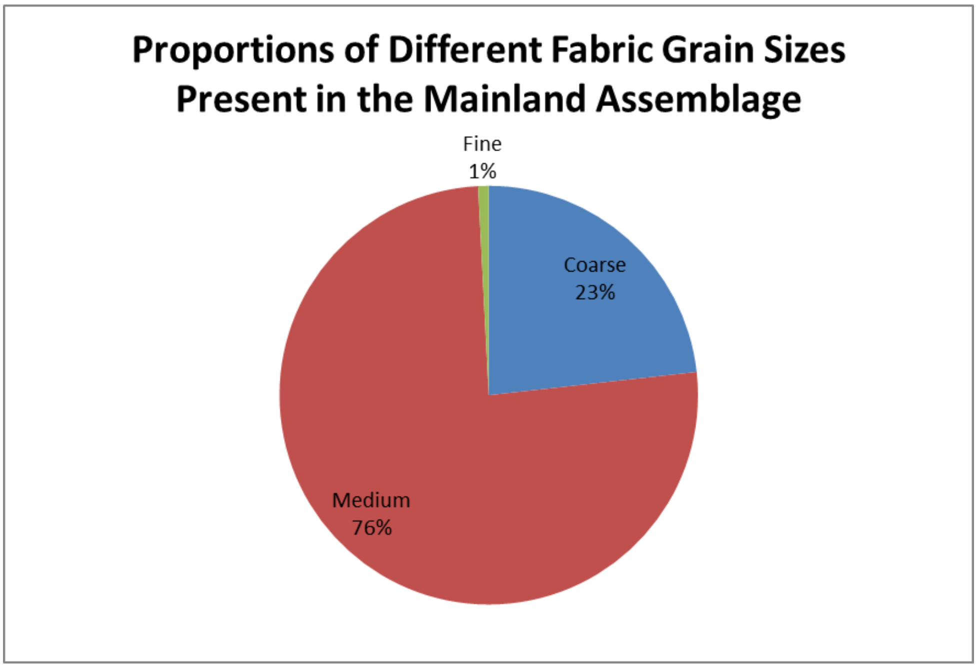


Figure 7. 3: the fabric grain size composition of the amalgamated mainland assemblages (n=4051)

This suggests that fabric data is not homogenous throughout the archipelago; the availability of natural resources, the preference for different fabrics at different locales, the sorting of clays into fine and coarse particles by some potters, or the introduction of ceramics through trade at certain sites could all serve as explanatory factors of this micro-patterning. In reference to the geological map in Chapter 1 (Figure 1.3), Bugala Island features some areas of the Buganda geological formation as well as the typical sandstone geology found throughout the islands, and the mainland comparative sites are generally located in areas of mixed geologies, which may explain differences within the fabric coarseness of the assemblages.

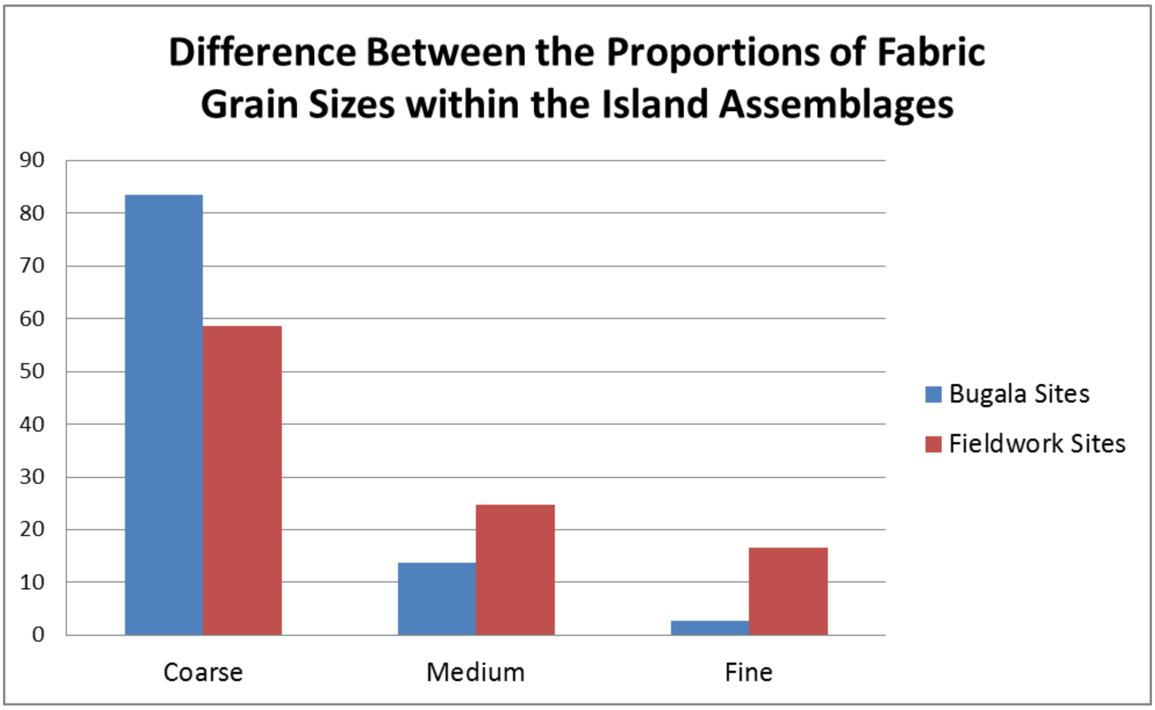


Figure 7. 4: proportions of coarse, medium, and fine grained fabrics in the Bugala ceramics and the fieldwork assemblages from Bubembe, Bukasa and Bubeke (n=4051)

7.1.3 Mineral and Grog Inclusions: Individual Site Comparison

Across the region grog tempers remain overwhelmingly associated with BKS 20 and BBK 1. The average proportion of grog inclusions for any Lake Victoria basin assemblage is 4.28%, though 24.05% of all inclusions recorded from the ceramics at BBK 1 and 21.06% at BKS 20 are grog. Bearing in mind sherds may contain more than one inclusion, the above figures are the percentages of grog present when compared to each individually recorded inclusion; in terms of actual sherd counts 54% of sherds in the BBK 1 assemblage and 51% from BKS 20 contain grog. The percentage of sherds containing grog from each analysed assemblage in the Lake Victoria Basin is illustrated in Figure 7.5, which makes apparent the heightened use of grog tempers at BBK 1 and BKS 20. Overall, there is five times the expected amount of grog temper present at BBK 1 and BKS 20 in comparison to the inclusion ratios from other sites in the region (see Tables 7.6 and 7.7).

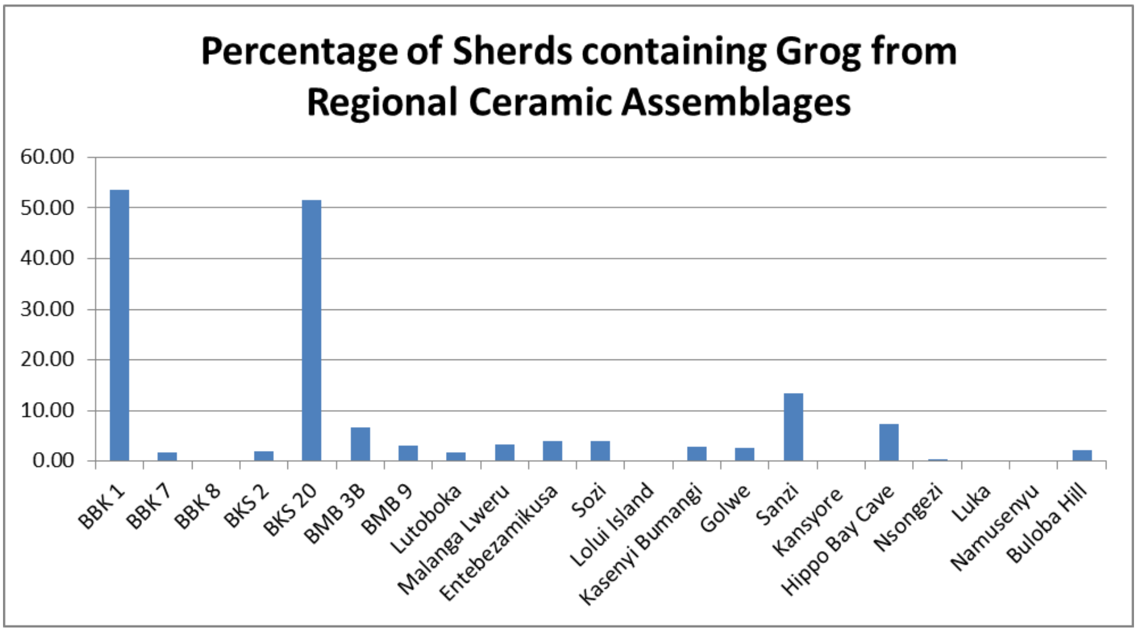


Figure 7. 5: percentage of sherds containing grog tempers from analysed sites within the Lake Victoria Basin (n=688)

BBK 1			
	O	E	Total
Grog	82	14.5909571	688
All Other Inclusions	259	326.409043	15391
Total	341	341	16079

Table 7. 6: Observed (O) and Expected (E) values for grog tempers from BBK 1 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 9.92148E-73)

BKS 20			
	O	E	Total
Grog	210	42.66036	688
All Other Inclusions	787	954.3396	15391
Total	997	997	16079

Table 7. 7: Observed (O) and Expected (E) values for grog tempers from BKS 20 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value =3.84; actual Chi-value = >68.76; P-value = 3.7557E-151)

Perhaps the association of grog with these island assemblages is the result of reduced island resources compared to the mainland, and competition over natural inclusions sources which may produce a need to incorporate grog into the clay instead of natural inclusions to increase malleability.

Kansyore and Nsongezi share a strong association with hematite inclusions (which were found to be indicative of younger ceramics at the excavated fieldwork sites), and both are uniquely devoid of any inclusion other than quartz and hematite which is interesting considering the localised geology is noted as being mica rich (see Chapter 1), yet no mica is recovered within the Kansyore and Nsongezi ceramics. Hematite is fairly common throughout the region with an average contribution of 17.60% to other site assemblages (see Figure 7.6), though both Kansyore and Nsongezi exhibit 2.5 times the expected number of hematite inclusions based on their assemblage size (see Tables 7.8 and 7.9). This may be reflective of localised patterning within the surrounding geological formation, or selective use of clay and inclusion sources around the Kagera River.

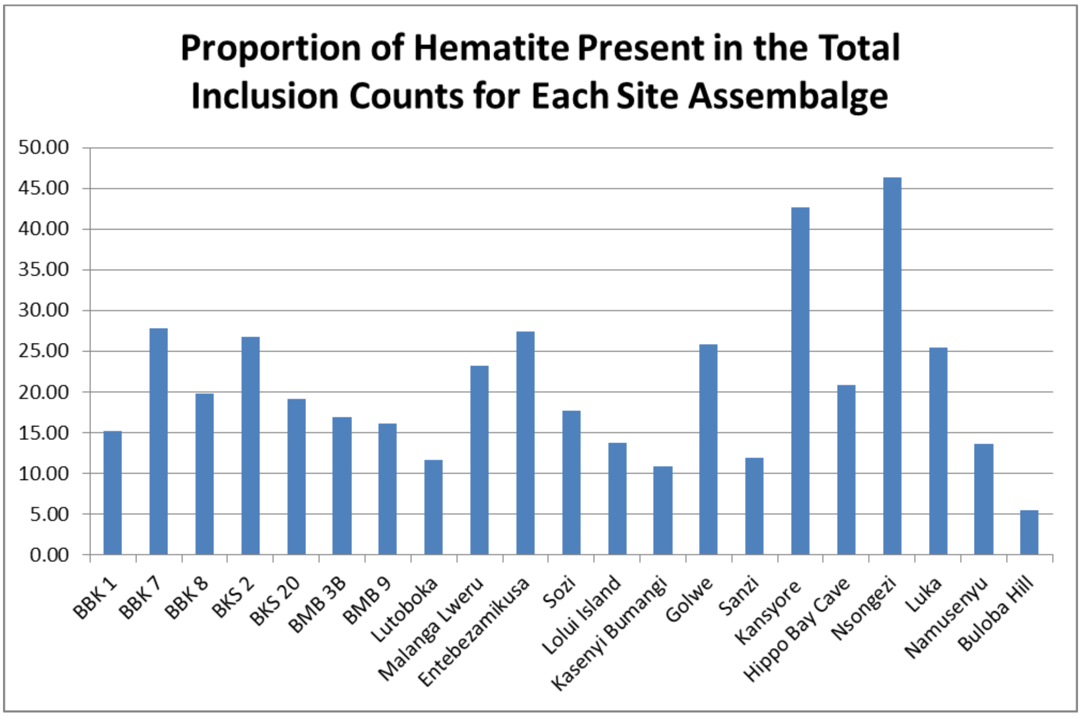


Figure 7. 6: percentage of hematite present in the total inclusion counts for each analysed ceramic assemblage in the Lake Victoria Basin (n=2830)

Kansyore			
	O	E	Total
Hematite	142	58.60999	**2830**
All Other Inclusions	191	274.39	**13249**
Total	**333**	**333**	**16079**

Table 7. 8: Observed (O) and Expected (E) values for hematite inclusions from Kansyore when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 3.6E-33)

Nsongezi			
	O	E	Total
Hematite	139	52.80179	**2830**
All Other Inclusions	161	247.1982	**13249**
Total	**300**	**300**	**16079**

Table 7. 9: Observed (O) and Expected (E) values for hematite inclusions from Nsongezi when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 5E-39)

Finally the Sanzi assemblage contains a uniquely high proportion of feldspar inclusions and Malanga Lweru associates with limestone/shell, both of which are extremely rare elsewhere (see Figures 7.7 and 7.8); the percentage of sherds containing feldspar at Sanzi is five times the regional average, and the quantity of limestone/shell containing sherds at Malanga Lweru is four times the average. This is reflected in the disparate figures for the observed and expected values at both sites (see Tables 7.10 and 7.11), with a subsequent Chi Squared test confirming the association of feldspar with Sanzi, and limestone/shell with Malanga Lweru. Based on the geological map (Chapter 1 Figure 1.3) there is no apparent explanation for the abundance of limestone/shell at Malanga Lweru other than selective manufacturing techniques. However Sanzi is located on the convergence of three different geological groups, which includes the Buganda geological group (which is not particularly associated with feldspar), Golomolo granite, which is an igneous rock with a high mineral content of quartz and feldspar, and orthoquartzite, which is also comprised mainly of quartz and/or feldspar (Dale and Gregory 1911; Robertson 1999; Talabi 2013). Therefore potters at Sanzi may have been using clays/inclusions derived from the granite and orthoquartzite areas, which contain high proportions of feldspar, over resources derived from the Buganda geological group. Luka also has access to the same three geological groups as Sanzi, though the lower levels of feldspar in the Luka assemblage may reflect use of raw materials derived from the Buganda geological group, rather than the groups rich in feldspar. Similarly both Buloba Hill and Namusenyu lay within easy access of the Buganda geological group and the Kampala Granite Suite, which has the same mineral composition as the Golomolo granite, though with a greater magnetic signature (Westerhof et al. 2014). However the lower levels of feldspar at these sites may again reflect use of resources derived from the Buganda geological group rather than the Kampala Granite Suite. Gosselain's study of both non-specialist Bafia potters in Cameroon (1992) and specialist potters in Nigeria (2008) suggests potters do not travel far to acquire raw materials but instead exploit sources more convenient to their daily tasks, e.g. utilising nearby clay sources located en route to agricultural fields, fishing sites, or markets (Gosselain 1992; 2008).

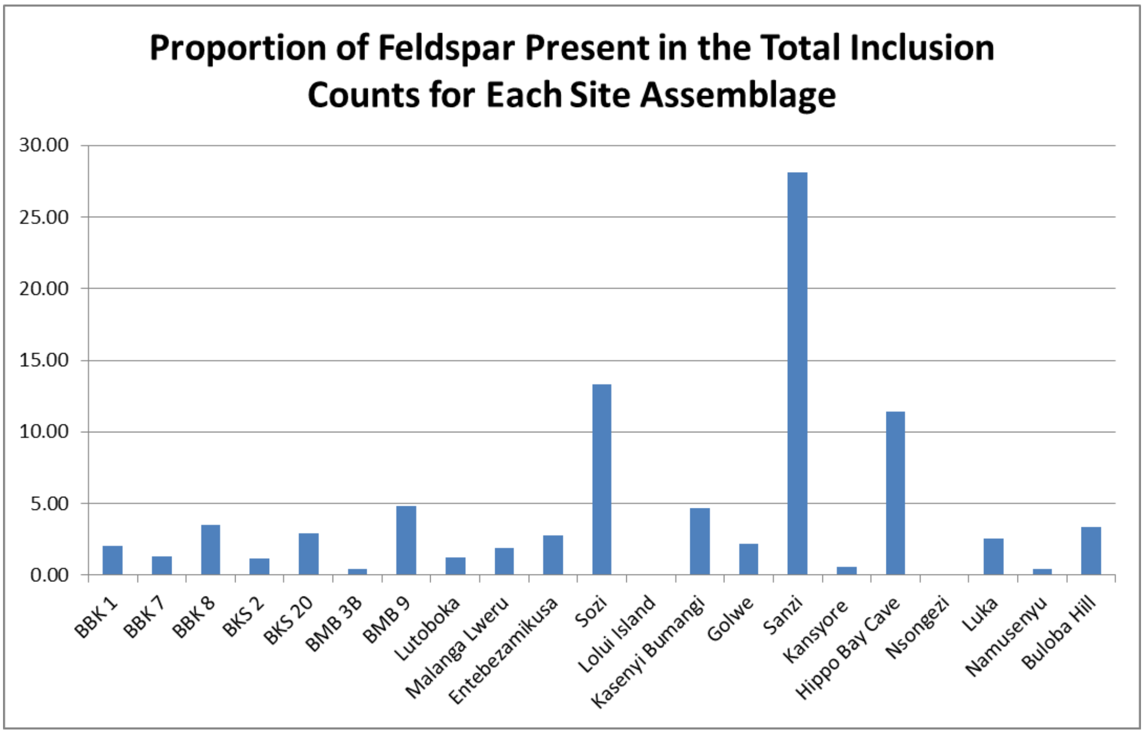


Figure 7. 7: percentage of feldspar present in the total inclusion counts for each analysed ceramic assemblage in the Lake Victoria Basin (n=1564)

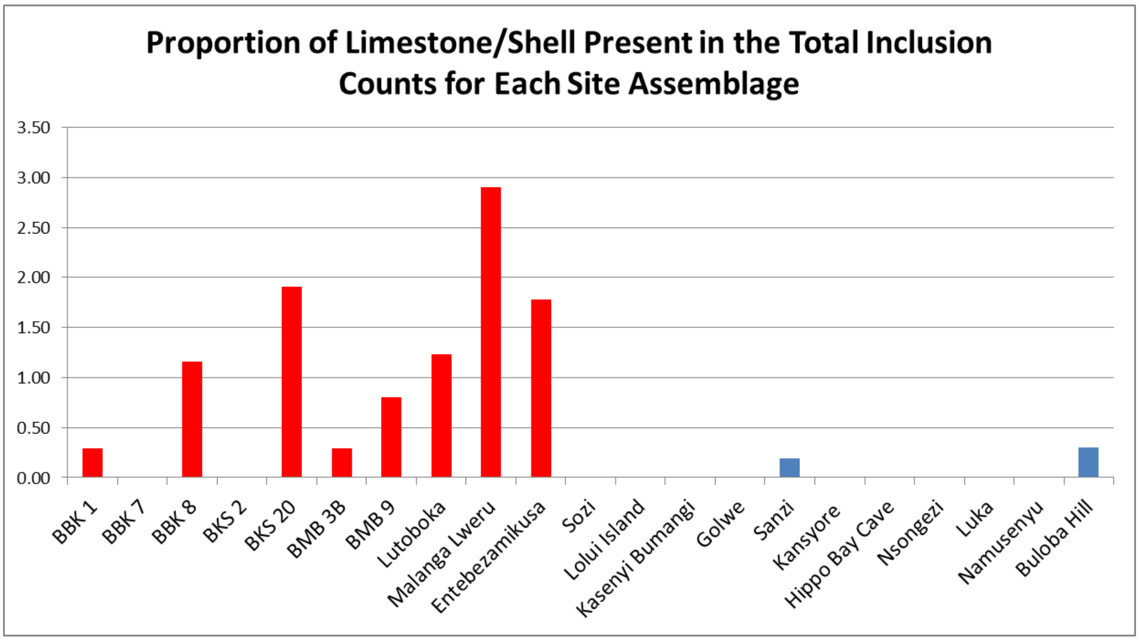


Figure 7. 8: percentage of limestone/shell present in the total inclusion counts for each analysed ceramic assemblage in the Lake Victoria Basin (island assemblages are coloured red) (n=80)

Sanzi			
	O	E	Total
Feldspar	1161	401.6267	**1564**
All Other Inclusions	2968	3727.373	**14515**
Total	**4129**	**4129**	**16079**

Table 7. 10: Observed (O) and Expected (E) values for feldspar inclusions from Sanzi when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = 68.76; P-value = 0.0000000)

Malanga Lweru			
	O	E	Total
Limestone/shell	31	5.323714	**80**
All Other Inclusions	1039	1064.676	**15999**
Total	**1070**	**1070**	**16079**

Table 7. 11: Observed (O) and Expected (E) values for limestone/shell inclusions from Malanga Lweru when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 6.7E-29)

The graph of limestone/shell presence within different site assemblages (Figure 7.8) highlights a pattern of association with the island assemblages (BBK 1, BBK 8, BKS

20, BMB 3B, BMB 9, Lutoboka, Malanga Lweru, and Entebezamikusa; shown in red on Figure 7.8), though overall counts are low with an average of ten sherds per island collection containing the calcareous material. However considering the almost complete absence from the mainland assemblages (to the right of the graph) we can consider this phenomenon to be rare but associated with island ceramics. This association suggest the calcareous inclusions are aquatically derived, i.e. crushed shell rather than limestone. This could be confirmed by carrying out an acid test on the ceramics.

7.1.4 Mineral and Grog Inclusions: Regional Comparison

Statistical testing on the inclusions ratios within the ceramics indicate that hematite, mica, grog, limestone and rose quartz are more prevalent in the islands than in the mainland collections, whereas feldspar is overwhelmingly associated with the mainland collections alongside elevated levels of quartz, which correlates with the presence of granite geologies on the northern lakeshore which are naturally rich in feldspar (Westerhof et al. 2014; Dale and Gregory 1911; Talabi 2013)(see Figure 7.9 and Chapter 1 Figure 1.3). However some localised mainland sites do exhibit high quantities of hematite (Kansyore, Nsongezi and Sanzi), despite them having a greater overall frequency in the islands.

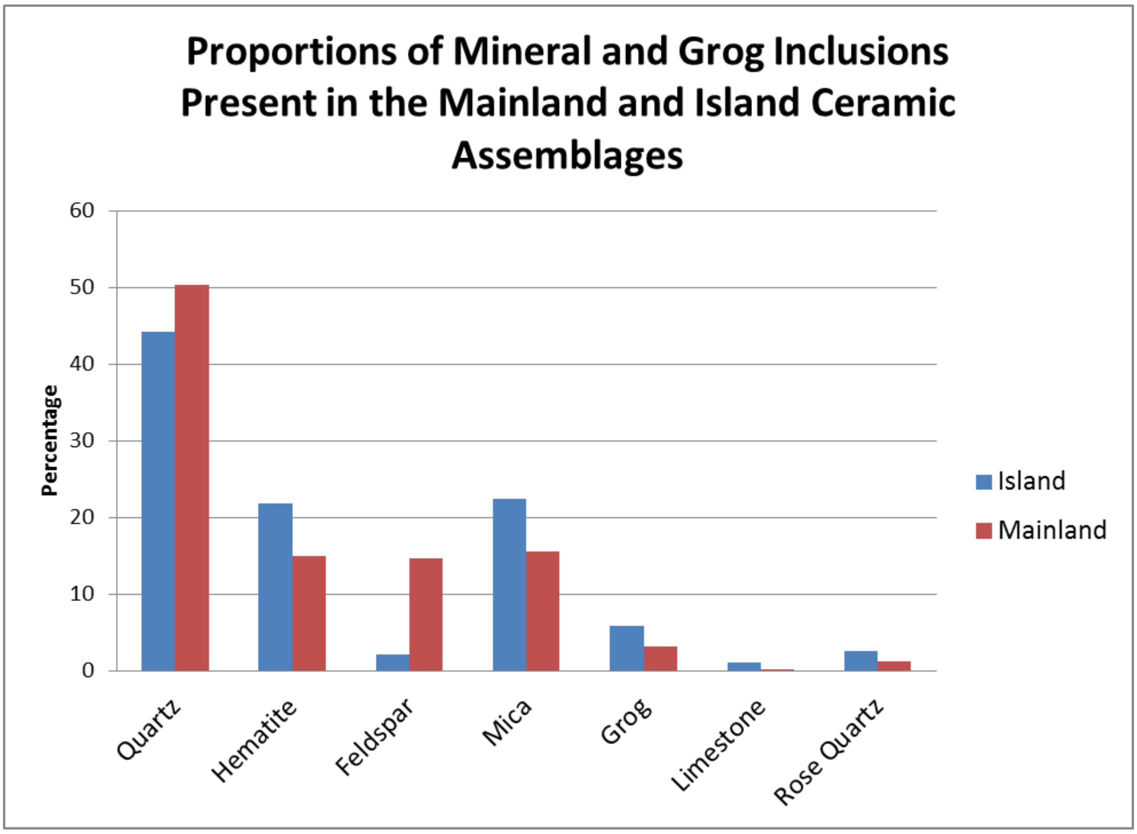


Figure 7. 9: A comparison of inclusion ratios between the island and mainland ceramics (n=16079)

The inclusion diversity in the islands, which cover a small geographic area with a largely uniform sandstone geology when compared to the mainland sites, is staggering. During the fieldwork survey rose quartz was found to decrease in an easterly direction (see Chapter 6 Part 1 Figure 6.7) and here also rose quartz is most strongly associated with the westerly Bugala Island sites, which contain twice the expected amount of rose quartz inclusions to the detriment of the fieldwork sites further east (see Figure 7.10). Hematite conversely displayed a correlation with the easterly sites in the earlier analysis (see Chapter 6 Part 1 Figure 6.7), though here hematite is marginally more elevated on Bugala Island in the west; therefore localised fluctuations in levels of hematite inclusions must occur throughout the islands. Only grog and mica inclusions are associated with the fieldwork sites on the islands east of Bugala, and the presence of both feldspar and limestone/shell shows little difference within the archipelago (see Figure 7.10).

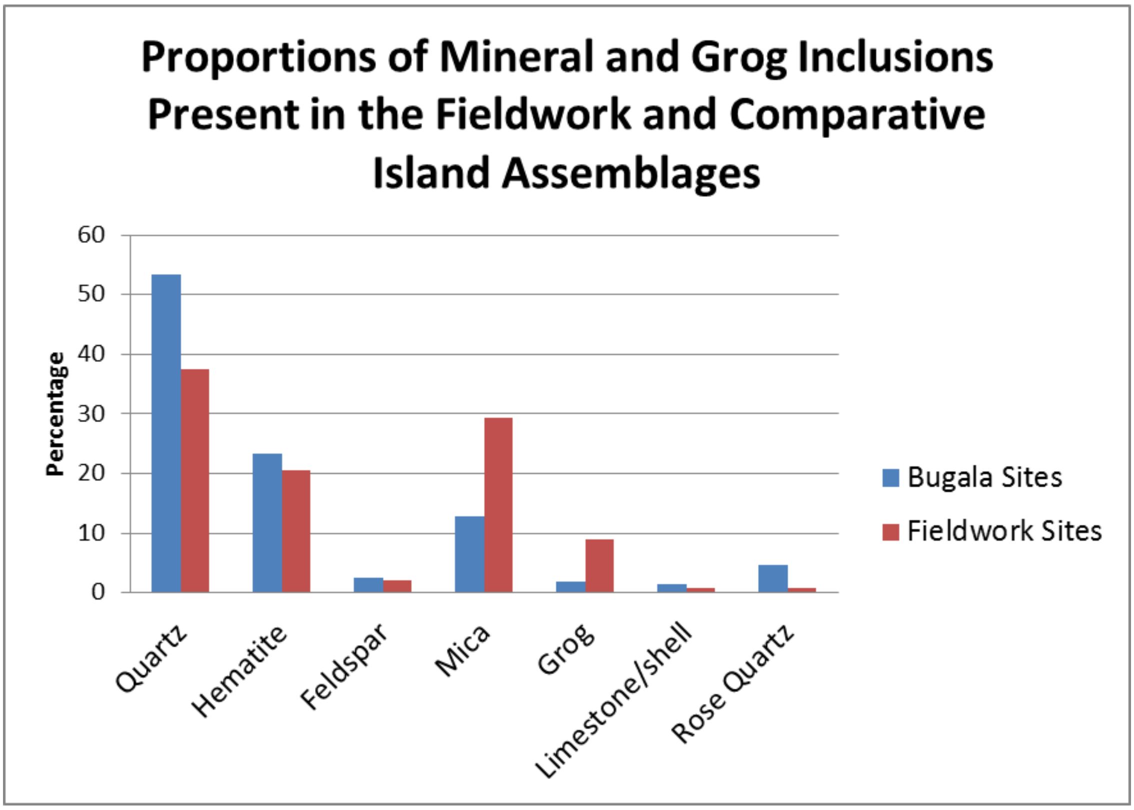


Figure 7. 10: A comparison of inclusion ratios between sites on Bugala Island and the fieldwork sites on Bubembe, Bukasa and Bubeke Islands (n=6331)

7.1.5 Magnetism: Individual Site Comparison

No single site had a high enough proportion of magnetic sherds within its assemblage to merit statistical testing (taking the mean percentage of all sites plus two standard deviations as the ‘critical level’, with any sites producing a percentage of magnetic sherds above this critical value subsequently tested for significance (see methodology Chapter 3 for greater explanation of these terms)). However it is worth commenting that assemblages from BBK 7, BBK 8, BKS 2, Entebezamikusa, Kansyore, Nsongezi, and Luka contained a much higher than average proportion of magnetic sherds (see Figure 7.11). Magnetism was found to correlate with younger ceramics in the fieldwork study (see Chapter 6 Part 2 Figure 6.22). Without the accompanying stratigraphic information for the ceramics from Entebezamikusa, Kansyore, Nsongezi and Luka, it is impossible to determine whether the magnetic sherds within these comparative sites are also more prevalent within the younger layers, or present throughout the site. However the distribution of magnetism as an attribute is evidently not even throughout the Lake Victoria Basin, with greater affinity to the Sesse Islands and the Kagera River sites (Nsongezi and Kansyore), which reflects records of high and low magnetic signatures throughout the region (see Chapter 6 Figure 6.11). Therefore raw materials in these locales utilised for ceramic manufacture naturally contain a higher magnetic signature, or local ceramic manufacturing traditions may be preferentially utilising crushed rock rich in magnetic minerals as intentionally added inclusions to the fabric.

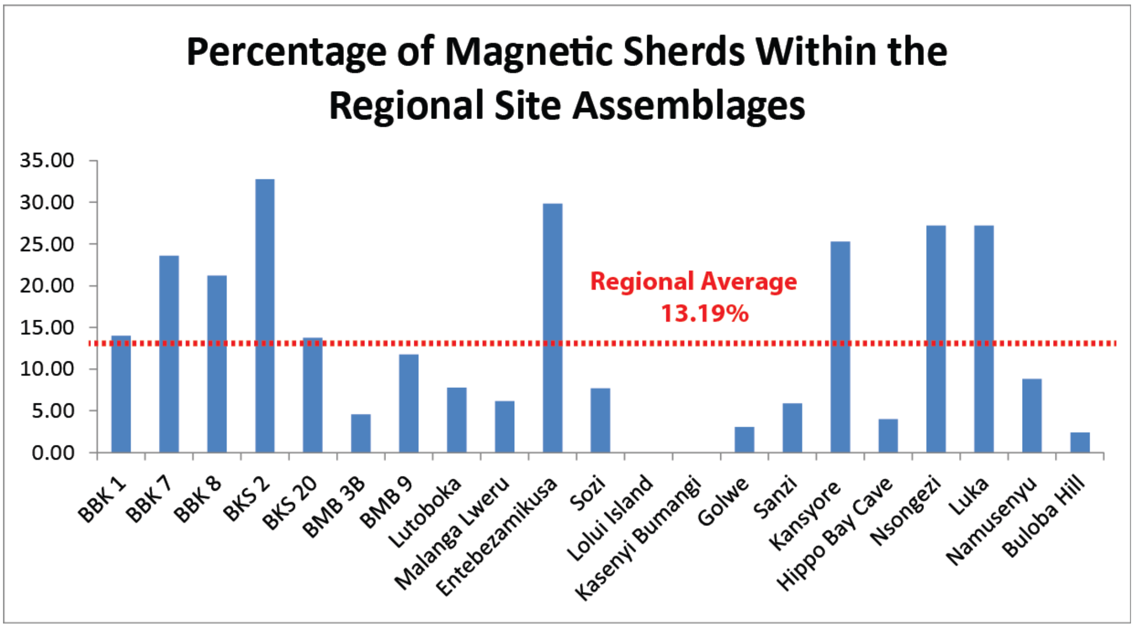


Figure 7. 11: percentage of magnetic sherds present each analysed ceramic assemblage in the Lake Victoria Basin. The average of 13.19% is indicated on the chart (n=805)

7.1.6 Magnetism: Regional Comparison

Despite the heightened levels of magnetism in the Nsongezi and Kansyore assemblages and at Luka on the Northern Lakeshore (see Figure 7.11), which reflects the naturally high magnetic signature in the localised geology (see Chapter 6 Figure 6.11), on a regional scale magnetism is more prevalent within the island assemblages rather than on the mainland which again reflects a band of high magnetic signature in the local geology (Figure 7.12).

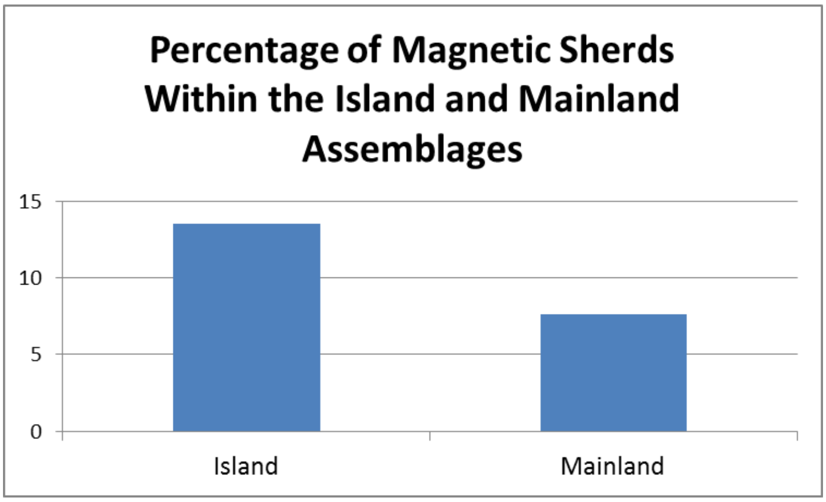


Figure 7. 12: proportion of magnetic sherds found in the island and mainland ceramic assemblages (n=805)

Within the islands there is an increase in levels of magnetism in an easterly direction, with lower than expected frequencies of magnetic sherds within the Bugala Island collections which lay on the edge of the marked area of high magnetic signature (see Table 7.12 and Chapter 6 Figure 6.11). This multitude of data implies the general trend of magnetism within the ceramics assemblages around Lake Victoria reflects the natural patterns of magnetism in the raw materials, which is manifest in a high incidence of magnetism at specific locales (the Kagera River and Luka), and within the islands there is a micro-regional pattern of an increase in magnetism in an easterly direction.

Magnetic Sherds			
	O	**E**	**Total**
Bugala Sites	137	197.0124	**1454**
Fieldwork Sites	268	207.9876	**1535**
Total	**405**	**405**	**2989**

Table 7. 12: Observed (O) and Expected (E) counts of magnetic sherds on Bugala Island and within the fieldwork assemblages (critical Chi-value = 3.84; actual Chi-value = 35.6; P-value = 2.4274E-09)

7.2 Analysis of Decorative Techniques

7.2.1 Decorative Techniques: Individual Site Comparison

Statistical testing of decorative techniques shows an association between stylus decorations and the sites of Kansyore and Nsongezi; 84.06% of the Kansyore assemblage and 91.74% of the Nsongezi ceramics were decorated with stylus (see Figure 7.13), alongside a distinctively low percentage of undecorated sherds (see Figure 7.14) and a low level of variety in the decorative techniques present (see Figures 7.15 and 7.16).

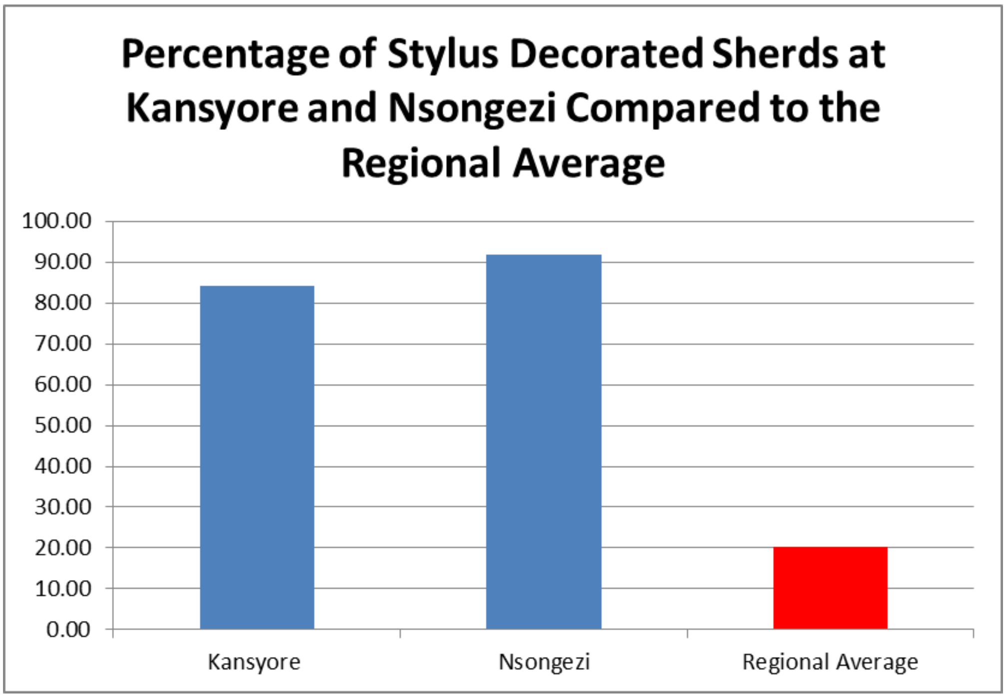


Figure 7. 13: proportion of stylus decorated sherds in the Kansyore and Nsongezi assemblages compared to the average for all analysed sites in the Lake Victoria basin (n=454 for count of stylus decorations at Kansyore and Nsongezi)

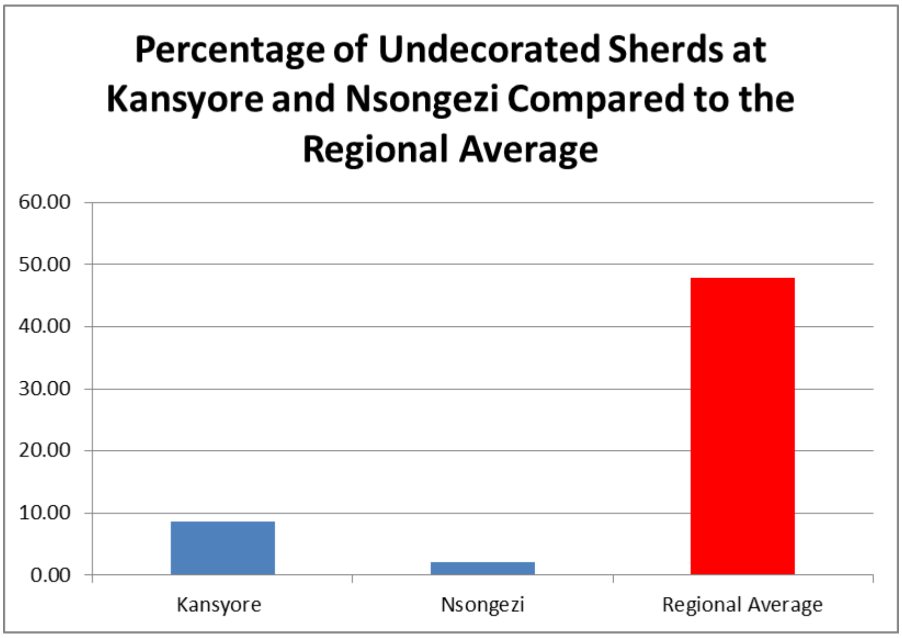


Figure 7. 14: proportion of undecorated sherds in the Kansyore and Nsongezi assemblages compared to the average for all analysed sites in the Lake Victoria basin (n=9 for count of undecorated sherds at Kansyore and Nsongezi)

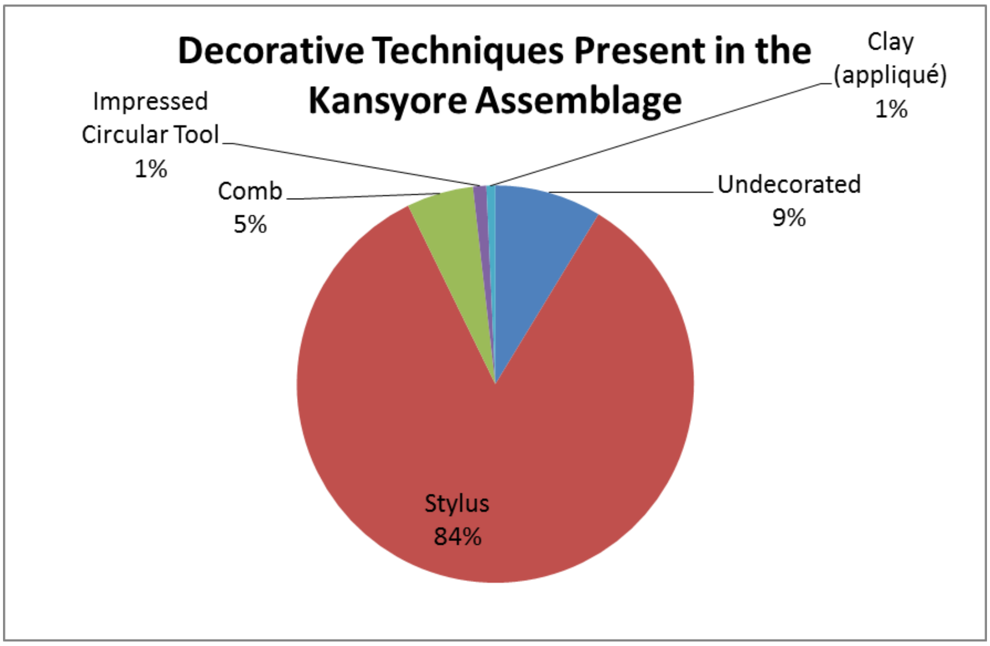


Figure 7. 15: Decorative composition of the Kansyore ceramic assemblage (n=276)

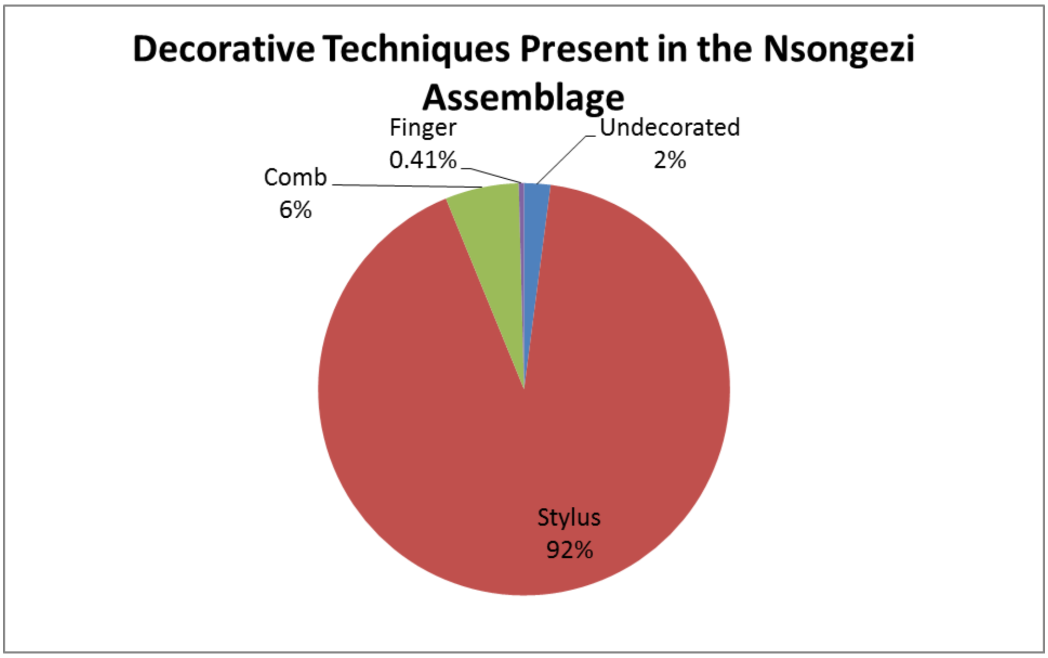


Figure 7. 16: Decorative composition of the Nsongezi ceramic assemblage (n=242)

Both the Kansyore and Nsongezi assemblages were completely devoid of KPR decorations, a factor which tends to link with younger ceramics in the fieldwork analysis. Indeed, both Kansyore and Nsongezi yielded comb decorations, which were associated with older sites during the fieldwork analysis. The absence of roulette decorative techniques supports the rejection of the previously proposed early second millennium AD date for Nsongezi, as in previous ceramic typologies rouletted decorations have been taken as indicators of the terminal Transitional and beginning of the Late Iron Age periods in which this site was suggested to fall chronologically in early research.

The only other dated site with a distinctive decorative association is Hippo Bay Cave, where both comb and TGR are present at much higher percentages than the regional averages of 7.28% for comb and 4.17% for TGR (see Figure 7.17), with the site dated to the late 15th/early 16th century AD. Within the islands TGR was only associated with westerly sites close to the mainland (see Chapter 6 Part 1 Figure 6.13), and Hippo Bay Cave is a mainland site.

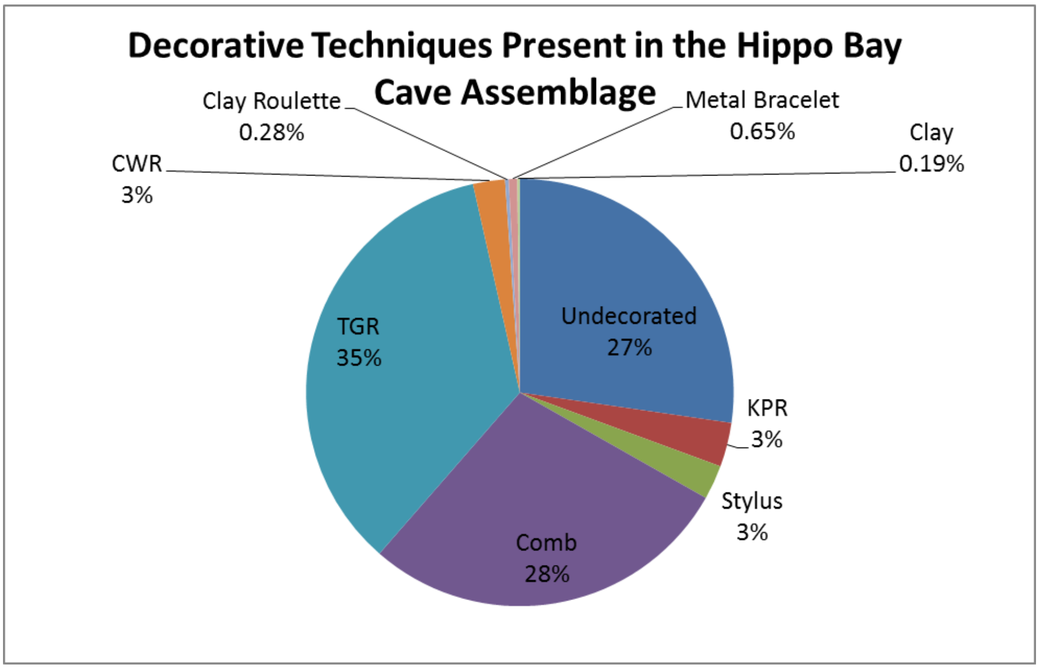


Figure 7. 17: Decorative composition of the Hippo Bay Cave ceramic assemblage (n=1078)

None of the dated island assemblages from Bugala Island have a significantly higher than average percentage of any one decorative technique when compared to all analysed assemblages within the region, and instead exhibit a greater variety of techniques. Among the undated island sites, Golwe has a statistically supported affinity with KPR decorations at six times the expected number for an assemblages of its size when compared to the incidence of KPR decorations at other sites in the Lake Victoria basin (see Table 7.13), and the BBK 7 assemblage similarly exhibits a much higher than average frequency of cord-wrapped paddle and grass decorations, though the expected values were too low for significance testing (see Figure 7.18).

Golwe			
	O	**E**	**Total**
KPR	154	24.19084	**698**
Undecorated	56	150.6556	**4347**
All Other decorations	98	133.1536	**3842**
Total	**308**	**308**	**8887**

Table 7. 13: Observed (O) and Expected (E) values for KPR decorations from Golwe when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 765.31; P-value = 6.519E-167)

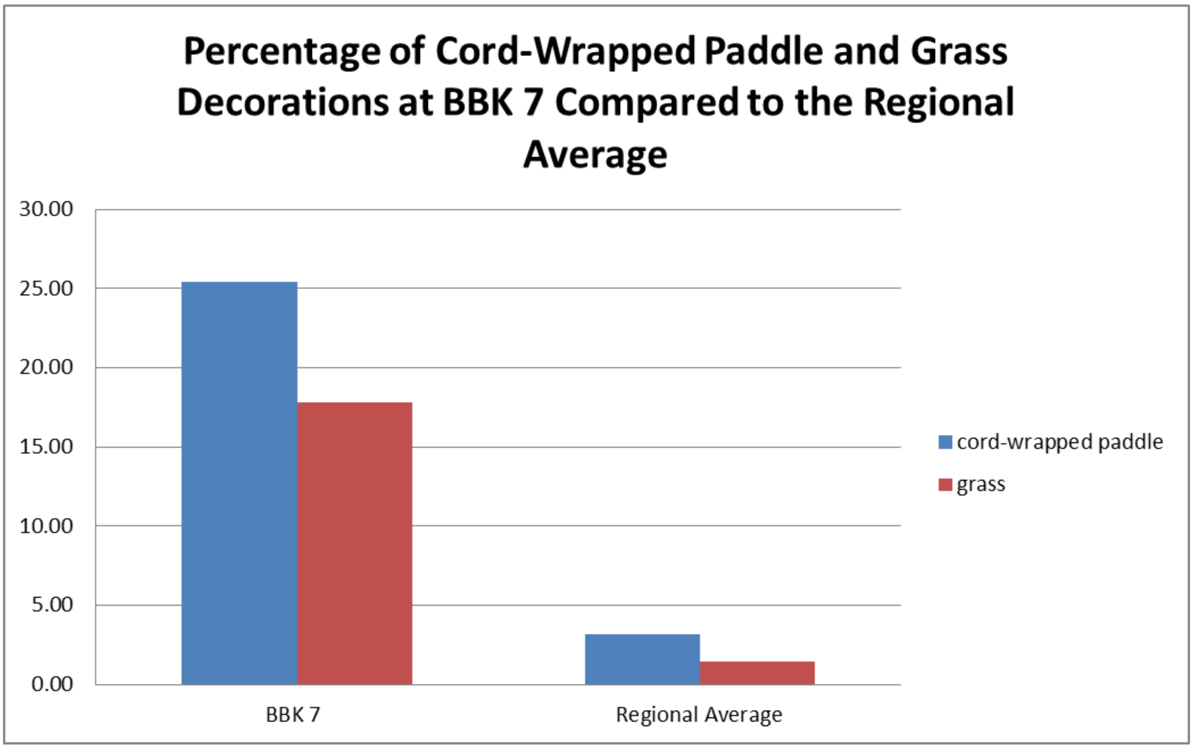


Figure 7. 18: proportion of cord-wrapped paddle and grass decorated sherds in the BBK 7 assemblage compared to the average for all analysed sites in the Lake Victoria basin (n=51 for CWP and grass decorations at BBK 7)

Of the undated mainland sites, Buloba Hill exhibited over twice the expected amount of comb decorations for an assemblage of its size when compared to the proportion of comb decorations present in all other analysed assemblages (see Table 7.14), and when compared to the same dataset the Namusenyu ceramics were decorated with ten times the expected amount of cord-wrapped paddle decorations (see Table 7.15). However as fieldwork results indicate that CWP is solely associated with surface deposits, removing these from the Namusenyu assemblage leaves the site with a uniquely heightened presence of both stylus and KPR decorations compared to the regional averages of 20.27% and 11.90% respectively, which is confirmed by statistical testing (see Figure 7.19).

Buloba Hill			
	O	E	Total
Comb	378	171.1975	**1122**
Undecorated	533	663.2758	**4347**
All Other Decorations	445	521.5267	**3418**
Total	**1356**	**1356**	**8887**

Table 7. 14: Observed (O) and Expected (E) values for comb decorations from Buloba Hill when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 286.63; P-value = 5.7E-63)

Namusenyu			
	O	E	Total
Cord-wrapped Paddle	150	14.68718	**227**
Undecorated	159	281.2563	**4347**
All Other Decorations	266	279.0565	**4313**
Total	**575**	**575**	**8887**

Table 7. 15: Observed (O) and Expected (E) values for CWP decorations from Namusenyu when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 5.99; actual Chi-value = 1300.4; P-value = 4E-283)

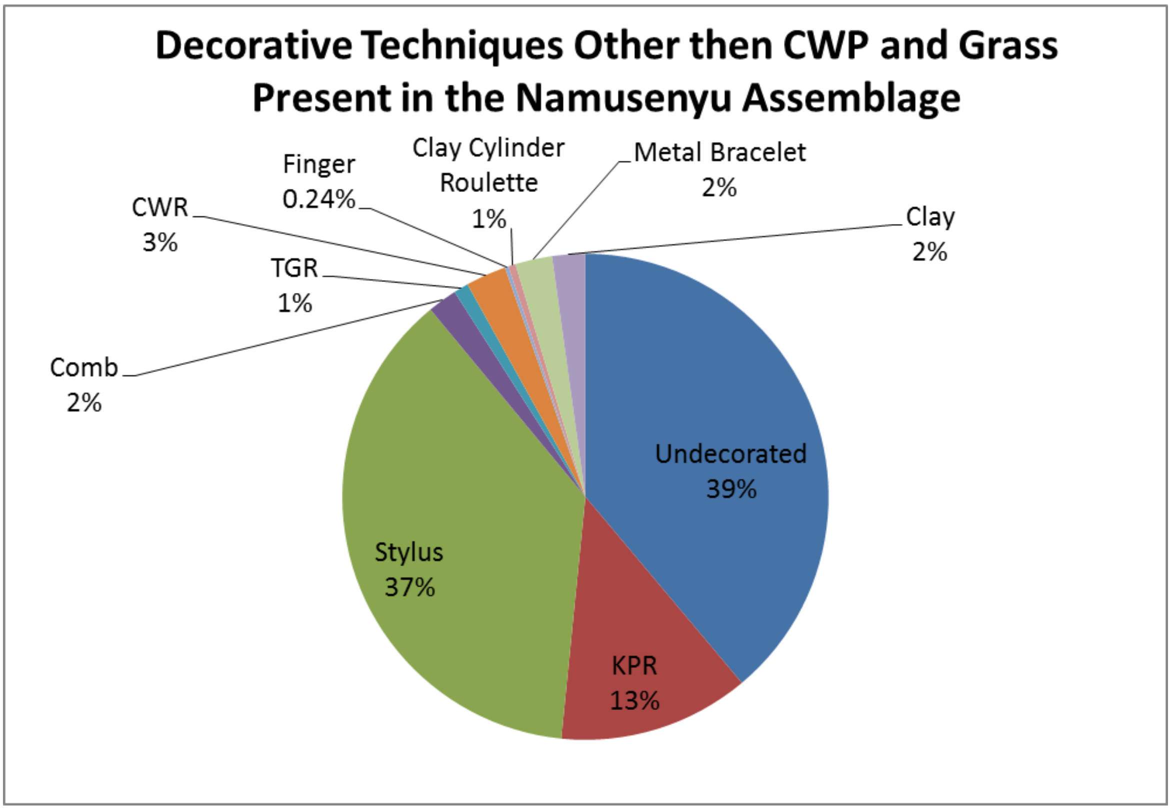


Figure 7. 19: Decorative composition of the Namusenyu ceramic assemblage after removal of CWP and grass decorations, which tend to be exclusively associated with surface deposits (n=409)

7.2.2 Decorative Techniques: Regional Comparison

Table 7.16 indicates the 'Observed' and 'Expected' values for each decorative technique from the combined island assemblages, with techniques statistically more prevalent in the islands based on Chi Squared testing highlighted in red. This statistical testing produces an association between KPR, CWR, and grass decorations and the island assemblages, all of which appear in more recent contexts within the fieldwork excavation data. Table 7.17 provides the same data for the amalgamated mainland assemblages, with statistical testing revealing an affinity with cord-wrapped paddle, comb, and TGR decorations.

Island Assemblages			
	O	**E**	**Total**
Undecorated	1626	1608.744329	**4338**
KPR	569	258.8528219	**698**
Stylus	609	629.3312877	**1697**
Cord-wrapped Paddle	58	84.18279452	**227**
Comb	256	415.3512329	**1120**
TGR	137	289.2624658	**780**
CWR	46	33.37643836	**90**
Finger	13	11.49632877	**31**
Clay Cylinder Roulette	9	5.562739726	**15**
Circular Tool	0	1.112547945	**3**
Metal Bracelet	5	8.900383562	**24**
Drill	5	4.821041096	**13**
Stick	1	0.370849315	**1**
Clay	5	8.900383562	**24**
Grass	45	23.73435616	**64**
Total	**3384**	**3384**	**9125**

Table 7. 16: Observed (O) and Expected (E) values for each decorative technique within the island assemblages. Techniques with a statistical association to the island assemblage are coloured red (critical Chi-value for all decorative techniques = 3.84; KPR actual Chi-value = >68.76, P-value = 1.812E-130; CWR actual Chi-value = 7.6, P-value = 0.005873; Grass actual Chi-value = 30.28; P-value = 3.73035E-08)

Mainland Assemblages			
	O	**E**	**Total**
Undecorated	2712	2729.255671	**4338**
KPR	129	439.1471781	**698**
Stylus	1088	1067.668712	**1697**
Cord-wrapped Paddle	169	142.8172055	**227**
Comb	864	704.6487671	**1120**
TGR	643	490.7375342	**780**
CWR	44	56.62356164	**90**
Finger	18	19.50367123	**31**
Clay Cylinder Roulette	6	9.437260274	**15**
Circular Tool	3	1.887452055	**3**
Metal Bracelet	19	15.09961644	**24**
Drill	8	8.178958904	**13**
Stick	0	0.629150685	**1**
Clay	19	15.09961644	**24**
Grass	19	40.26564384	**64**
Total	**5741**	**5741**	**9125**

Table 7. 17: Observed (O) and Expected (E) values for each decorative technique within the mainland assemblages. Techniques with a statistical association to the mainland assemblage (confirmed with a Chi Squared test) are coloured red (critical Chi-value for all decorative techniques = 3.84; CWP actual Chi-value = 12.94, P-value = 0.00032; Comb actual Chi-value = >68.76, P-value = 6.36E-23; TGR actual Chi-value = >68.76; P-value = 1.5E-29)

CWP may be more prevalent on the mainland, but in both mainland and island assemblages CWP decorations are isolated to a few sites, namely Namusenyu on the mainland (see Table 7.15) and site BBK 7 within the lake (see Figure 7.18), which is located on the most remote island in this study. With a lack of CWP decorations elsewhere yet an abundance in the assemblages at BBK 7 and Namusenyu (see Figure 7.20), there may have been direct interaction between populations inhabiting Namusenyu on the northern lake shore and Bubeke Island. Although the island is isolated, ethno-historic records from the nineteenth and early twentieth century mention that the Kabaka of Buganda often took boat trips from his palace on the northern lakeshore directly to the islands either for refuge at times of warfare, or to pay homage to traditional religious shrines (Gutkind 1963; Roscoe 1911; Ray 1991; Kagwa 1934). Considering the perceived recentness of the CWP decorations based upon the fieldwork excavation data (see Chapter 6 Part 2), potentially by the time CWP decorations became established, maritime technology may have been developed enough to allow direct contact between sites on the northern lakeshore and sites on the remote island of Bubeke.

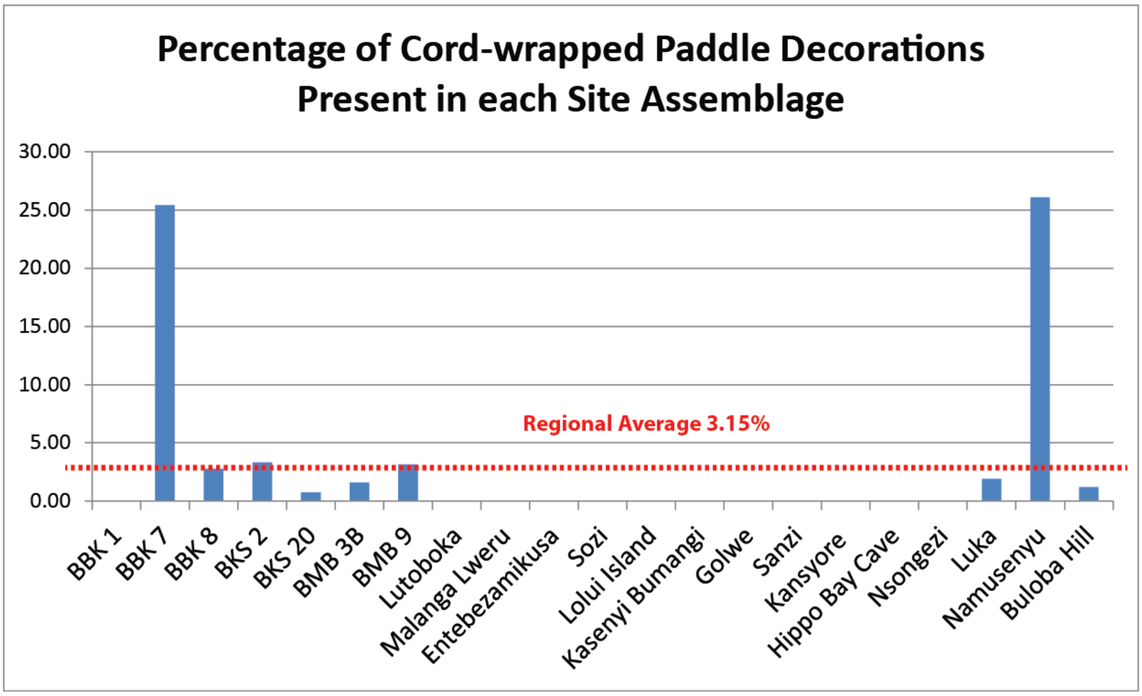


Figure 7. 20: proportion of cord-wrapped paddle decorations found in each site assemblage within the Lake Victoria basin, with the regional average indicated (n=227)

Interestingly, while 76% of CWP decorations in the islands co-occur on the same vessels as grass decorations, grass decorations are largely absent from the mainland and found on only 10% of the CWP decorated sherds; therefore the combination of grass and CWP may represent a micro-style which emerged in the islands after the knowledge of CWP production was introduced into the ceramic sequence (this is discussed further in Chapter 8).

Stylus decorations occur in similar proportions in both island and mainland assemblages, contributing 18% and 19% of each assemblage respectively. A stylus is the simplest tool to produce and requires no specialist knowledge in its manufacture, which may account for its universal presence throughout the region. Localised mainland patterning suggests stylus is more prevalent in the south-western sites on the Kagera River (Kansyore and Nsongezi) than at sites on the northern lakeshore (see Figure 7.13).

Within the Sesse Islands the distribution of decorative techniques shows a lot of micro-patterning. So far we know from the fieldwork study that CWP and grass decorations increase in quantity in an easterly direction through the islands (see Chapter 6), which is further supported by a complete absence of both CWP and grass in the most westerly island Bugala. TGR decorations were found to be more prevalent in the westerly sites during the fieldwork analysis (see Chapter 6 Part 1 Figure 6.13) and here there is a proven association between TGR and mainland ceramics over island assemblages (see Tables 7.16 and 7.17). Within the Sesses, TGR is more often associated with sites on Bugala Island rather than the fieldwork assemblages on Bubembe, Bukasa and Bubeke, which further supports the west to east patterning in the distribution of TGR decoration within the islands (see Table 7.18).

TGR			
	O	**E**	**Total**
Bugala Sites	90	66.24079	**1510**
Fieldwork Sites	47	70.75921	**1613**
Total	**137**	**137**	**3123**

Table 7. 18: Observed (O) and Expected (E) values for TGR decorations from the Bugala Island sites and the fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 6.50; P-value = 4.9E-05)

This new comparative evidence suggests that TGR is in fact associated with proximity to the mainland, possibly with knowledge of the TGR tool manufacturing technique spreading within the islands through diffused interaction with mainland populations.

Similarly, comb decorations are more often associated with mainland assemblages overall (see Tables 7.16 and 7.17) and also with sites on Bugala in the west of the Sesse archipelago (see Table 7.19). However whilst comb decoration features across the mainland sites, within the islands comb decorations are more selective in their appearance (see Figure 7.21).

Comb			
	O	**E**	**Total**
Bugala Sites	191	123.7784	**1510**
Fieldwork Sites	65	132.2216	**1613**
Total	**256**	**256**	**3123**

Table 7. 19: Observed (O) and Expected (E) values for comb decorations from the Bugala Island sites and the fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 4.19659E-17)

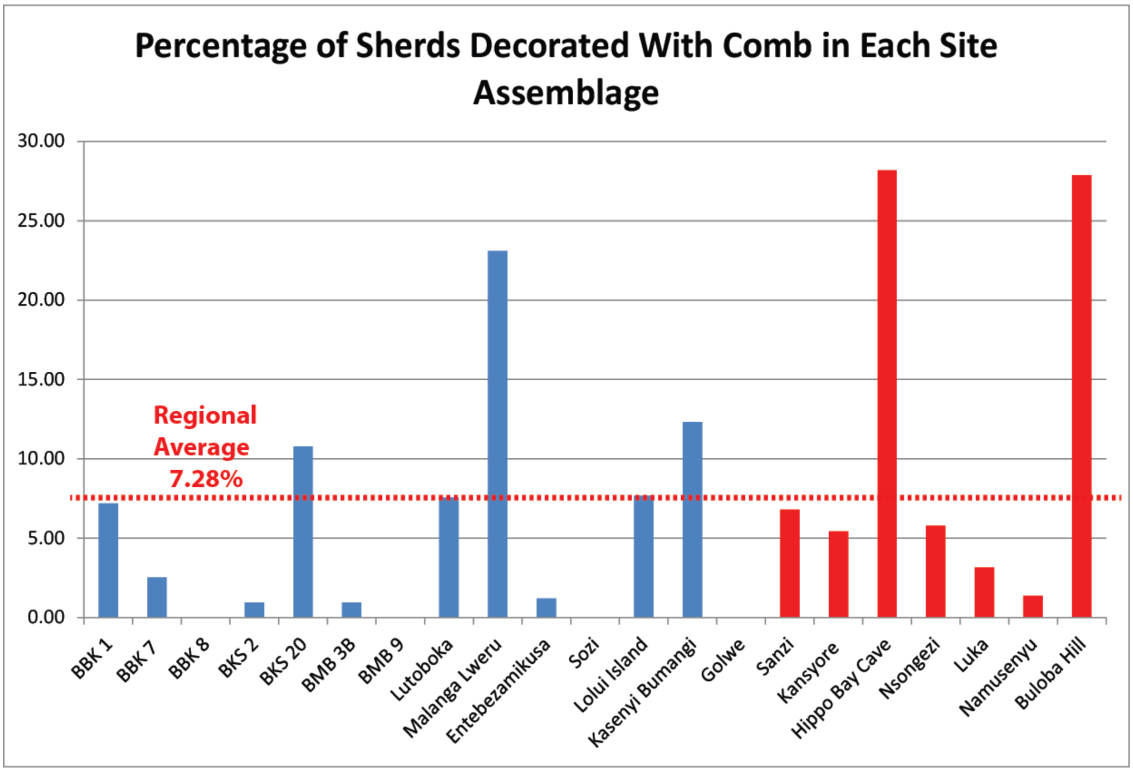


Figure 7. 21: Proportion of comb decorated sherds in each site assemblage; mainland assemblages are coloured red and the regional average is indicated on the chart (n=1122)

On Bugala Island the comb decorated sherds appear in great amounts at Malanga Lweru and amongst the fieldwork sites only BKS 20 has a statistically high association with comb decoration, suggesting both BKS 20 and Malanga Lweru may have shared a privileged position of interaction with the mainland populations due to the technical knowledge required to produce efficient comb decorative tools. Stylus again shows no patterning within the islands, with the combined fieldwork and comparative data suggesting the decorative technique was widely used over both space and time.

7.3 Rim Sherd Attributes

7.3.1 Vessel Form: Individual Site Comparison

With jars and bowls serving as generic and multi-functional vessel forms, no site has greater than two standard deviations (the 'critical level' of statistical significance) above the mean percentage of jars (40.61%) in their rim sherd collection, though Nsongezi and BMB 9 are both close to this 'critical level' of 79.98% in their proportions of jars (see Chapter 3 for an in-depth explanation of these statistical terms). This is illustrated in Figure 7.22; any assemblage containing a proportion of jars above the 79.98% 'critical level' would be deemed to have a significantly high number of jars on a statistical basis compared to the other analysed sites.

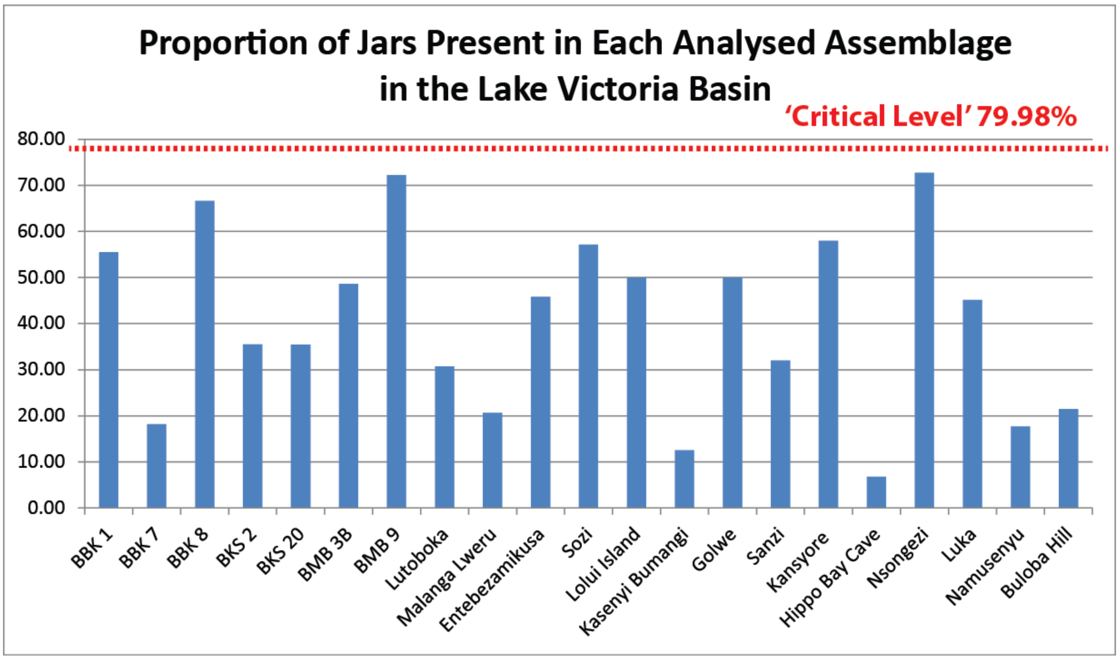


Figure 7. 22: proportion of jars present in each analysed assemblage in the Lake Victoria basin, with the 'critical level' of 'statistical significance' indicated (n=456)

Hippo Bay Cave is the only individual site assemblage with a distinctively high number of bowls at 1.5 times the expected value (see Table 7.20), suggesting this to be a manufacturing choice at the site rather than coincidence. Namusenyu is overwhelmingly associated with open-collared bowls, exhibiting seven times the expected value based on the proportion of open-collared bowls present in the other analysed site assemblages (see Table 7.21) though as with the CWP and grass decorations, open-collared bowls in the fieldwork assemblages appear to associate with surface deposits only.

Hippo Bay Cave			
	O	**E**	**Total**
Bowl	303	191.949	**907**
All Other Vessel Forms	50	161.051	**761**
Total	**353**	**353**	**1668**

Table 7. 20: Observed (O) and Expected (E) values for the bowl vessel form from Hippo Bay Cave when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 1.75993E-32)

Namusenyu			
	O	**E**	**Total**
Open-collared Bowl	109	15.76978	**137**
All Other Vessel Forms	83	176.2302	**1531**
Total	**192**	**192**	**1668**

Table 7. 21: Observed (O) and Expected (E) values for the open-collared bowl vessel form from Namusenyu when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 1E-132)

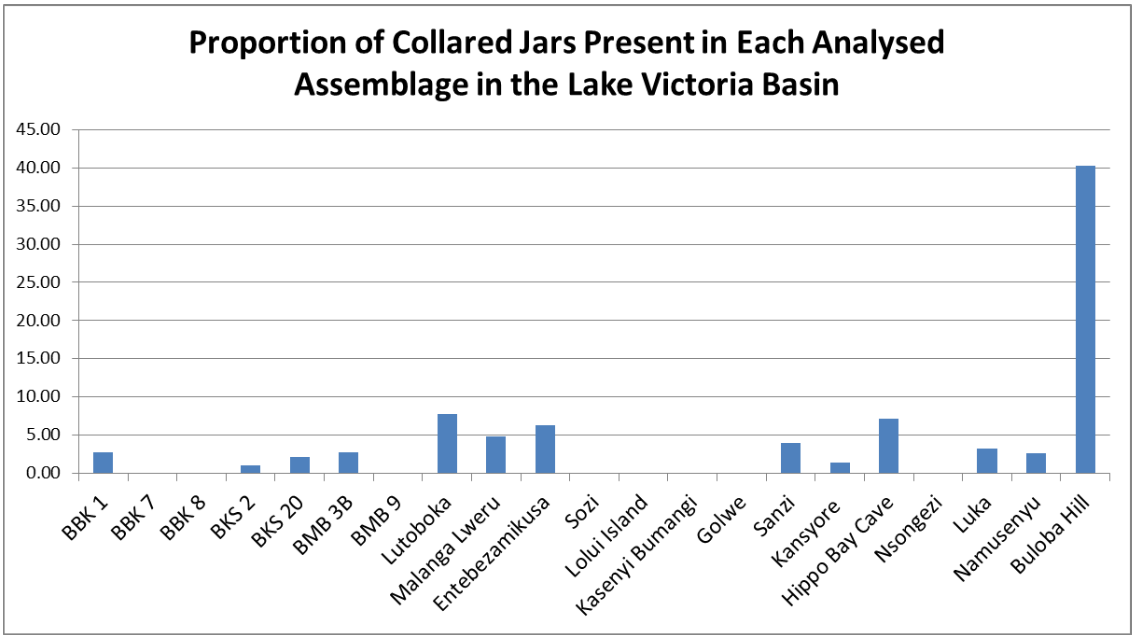


Figure 7. 23: proportion of collared jars present in each analysed assemblage in the Lake Victoria basin (n=160)

The Buloba Hill assemblage has a uniquely high percentage of collared jars, which are rare elsewhere throughout the region (see Figure 7.23). This vessel form may be distinctive of a localised tradition at the site, which could relate to either stylistic or functional preferences (see Appendix A1 for illustration of collared jar).

7.3.2 Vessel Form: Regional Comparison

Within the rim form data bowls are evenly represented between the island and mainland assemblages, contributing 56% and 54% respectively of each rim form collection. Open-collared bowls and collared jars appear more frequently than expected in the mainland assemblage, with this association supported by Chi Squared statistical testing (see Table 7.22). Both are much stylised vessel forms, potentially with a restricted range of functions, suggesting that vessel form diversity is more varied on the mainland as is perhaps the range of socio-economic uses of ceramics.

Mainland Assemblage			
	O	E	Total
Jar	265	314.265343	**453**
Bowl	620	627.143201	**904**
Plate	5	4.162454874	**6**
Open-collared bowl	117	95.04271961	**137**
Collared Jar	145	110.9987966	**160**
Tobacco Pipe	1	1.387484958	**2**
Total	**1153**	**1153**	**1662**

Table 7. 22: Observed (O) and Expected (E) values for each vessel form in the mainland rim sherd assemblage (critical Chi-value for all tests = 3.84; Open-collared bowl actual Chi value = 16.56, P-value = 4.705E-05; Collared jar actual Chi-value = 34.01; P-value = 5.48805E-09)

Jars, on the other hand, are over-represented in the island assemblages (see Table 7.23). The abundant need for jars may have several explanations; isolation may increase the need to transport goods for longer distances to markets, requiring jars which allow for transportation without spillage.

Jar Vessel Form			
	O	E	Total
Island	188	138.7347	**509**
Mainland	265	314.2653	**1153**
Total	**453**	**453**	**1662**

Table 7. 23: Observed (O) and Expected (E) values for the jar vessel form in the mainland and island rim sherd assemblages (critical Chi-value = 3.84; actual Chi-value = 25.22; P-value = 5.1E-07)

Intra-island patterning supports this theory as the more isolated easterly sites have a greater proportion of jars than the Bugala sites which are located closer to the mainland (see Table 7.24). Alternately, ethnographic information on traditional religious practices suggests the offering of consumable liquids to spirits at the shrines (most often beer in modern times)(Amin 2007); the heightened presence of shrines on the Sesse Islands could be attracting pilgrims bringing jars to be filled as gifts for the spirits. While 6 shrines have been recorded on Bugala Island in the ethno-historic texts, shrine numbers increase further east with 8 recorded on Bubembe, 11 on Bukasa, and 6 on Bubeke (Roscoe 1911; Kagwa 1934) (see Chapter 1 Figure 1.2). This again could explain the uneven distribution of jars within the islands.

Jar Vessel Form			
	O	E	Total
Bugala Sites	75	89.75246	**243**
Fieldwork Sites	113	98.24754	**266**
Total	**188**	**188**	**509**

Table 7. 24: Observed (O) and Expected (E) values for the jar vessel form in the collections from Bugala Island and the fieldwork assemblages from Bubembe, Bukasa and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 4.64; P-value = 0.03123)

Other micro-regional variations in vessel form distribution within the islands includes a link between open-collared bowls and the more easterly fieldwork sites (see Table 7.25). Collared jars, which are overwhelmingly associated with mainland assemblages (see Table 7.22) and only present in low quantities within the islands, are associated most often with the westerly Bugala Island sites (see Table 7.26). There appears to be a definite association between proximity to the mainland and the presence of collared jars, which may be the result of trade and interaction.

Open-collared Bowl Vessel Form			
	O	E	Total
Bugala Sites	1	9.5481336	243
Fieldwork Sites	19	10.451866	266
Total	20	20	509

Table 7. 25: Observed (O) and Expected (E) values for the open-collared bowl vessel form in the collections from Bugala Island and the fieldwork assemblages from Bubembe, Bukasa and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 14.64; P-value = 0.0001298)

Collared Jar Vessel Form			
	O	E	Total
Bugala Sites	11	7.1611	243
Fieldwork Sites	4	7.8389	266
Total	15	15	509

Table 7. 26: Observed (O) and Expected (E) values for the collared jar vessel form in the collections from Bugala Island and the fieldwork assemblages from Bubembe, Bukasa and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 3.94; P-value = 0.047208)

7.3.3 Rim Forms: Individual Site Comparison

Corresponding with the high proportion of open-collared bowls at Namusenyu, EvGr1 rims (see Appendix A2 for illustrations) are characteristic of the site due to their primary association with the open-collared bowl form, with seven times the expected number of EvGr1 rims appearing at the site when compared to the proportion present in other assemblages within the region (see Table 7.27). Similarly EvGr6 rims which are associated with collared jars dominate the rim form assemblage at Buloba Hill with a presence at almost six times the expected value (see Table 7.28).

Namusenyu			
	O	E	Total
EvGr1	109	15.47077	133
All Other Rim Forms	82	175.5292	1509
Total	191	191	1642

Table 7. 27: Observed (O) and Expected (E) values for the EvGr1 rims from Namusenyu when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 8E-136)

Buloba Hill			
	O	**E**	**Total**
EvGr6	94	16.94032	**114**
All Other Rim Forms	150	227.0597	**1528**
Total	**244**	**244**	**1642**

Table 7. 28: Observed (O) and Expected (E) values for EvGr6 rims from Buloba Hill when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 6.54438E-84)

Whilst no vessel form stands out at either Nsongezi nor Kansyore, the rim form assemblage at Nsongezi contains four times the expected proportion of un-thickened flared EvGr3 rims, whereas the Kansyore ceramics possess almost twice the expected frequency of simple rims in general (see Tables 7.29 and 7.30). ThGr2 closed and internally thickened rims are found three times the expected level on the bowls at Hippo Bay Cave (see Table 7.31), closed and internally thickened ThGr6 and ThGr2 rims feature more frequently than expected at Malanga Lweru (see Table 7.32), and closed and externally thickened ThGr3 rims are frequently found at BKS 2 (see Table 7.33). The only distinct spatial pattern on a regional level is the association of simple/un-thickened rims with the sites on the Kagera River (Nsongezi and Kansyore); no other rim form patterning correlates with a specific locale within the Lake Victoria basin.

Nsongezi			
	O	**E**	**Total**
EvGr3	31	7.699147	**294**
All Other Rim Forms	12	35.30085	**1348**
Total	**43**	**43**	**1642**

Table 7. 29: Observed (O) and Expected (E) values for EvGr3 rims from Nsongezi when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 2E-20)

Kansyore			
	O	**E**	**Total**
Simple Rims	22	13.19488	**314**
All Other Rim Forms	47	55.80512	**1328**
Total	**69**	**69**	**1642**

Table 7. 30: Observed (O) and Expected (E) values for simple rim forms from Kansyore when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = 7.28; P-value = 0.007)

Hippo Bay Cave			
	O	**E**	**Total**
ThGr2	253	67.95615	**317**
All Other Rim Forms	99	284.0438	**1325**
Total	**352**	**352**	**1642**

Table 7. 31: Observed (O) and Expected (E) values for ThGr2 rims from Hippo Bay Cave when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 8E-138)

Malanga Lweru			
	O	**E**	**Total**
ThGr6+ThGr2	40	25.55298	**333**
All Other Rim Forms	86	100.447	**1309**
Total	**126**	**126**	**1642**

Table 7. 32: Observed (O) and Expected (E) values for ThGr6 and ThGr2 rims from Malanga Lweru when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = 10.25; P-value = 0.001)

BKS 2			
	O	**E**	**Total**
ThGr3	46	61.22222	**133**
All Other Rim Forms	41	25.77778	**56**
Total	**87**	**87**	**189**

Table 7. 33: Observed (O) and Expected (E) values for ThGr3 rims from BKS 2 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 2.2008E-74)

7.3.3 Rim Forms: Regional Comparison

Amongst the overall rim manufacturing categories thickened, everted, and simple rims are all well-represented in both the island and mainland collections (see Figure 7.24), though the slightly higher than expected proportion of thickened rims in the island assemblages demonstrates a statistical correlation when subject to Chi Squared testing (see Table 7.34). Within the Sesse Islands everted and thickened rims indicate no preference in spatial patterning from west to east, though simple rims are over-represented on the most westerly Bugala Island and are slightly lacking further east (see Table 7.35).

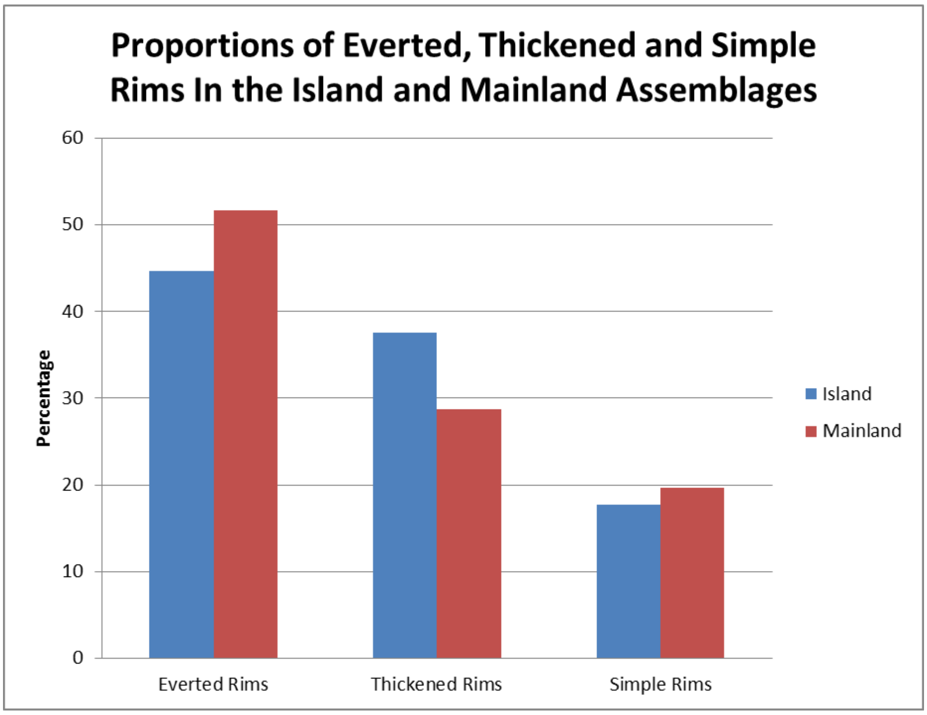


Figure 7. 24: The proportion of everted, thickened, and simple rims present in the island and mainland rim form assemblages (n=1636)

Thickened Rims			
	O	**E**	**Total**
Island	189	158.033	**503**
Mainland	325	355.967	**1133**
Total	**514**	**514**	**1636**

Table 7. 34: Observed (O) and Expected (E) values for thickened rim forms from the island and mainland assemblages (critical Chi-value = 3.84; actual Chi-value = 8.76; P-value = 0.003)

Simple Rims			
	O	**E**	**Total**
Bugala Sites	63	42.99602	**243**
Fieldwork Sites	26	46.00398	**260**
Total	**89**	**89**	**503**

Table 7. 35: Observed (O) and Expected (E) values for simple rim forms from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 18.01; P-value = 2.203E-05)

Table 7.36 indicates the 'Observed' and 'Expected' values of each everted rim form within the amalgamated island sites assemblage, and Table 7.37 presents the same data for the mainland sites assemblage. On each table rim forms with a statistically proven association to the assemblage (using the Chi Squared test) is highlighted in red. EvGr2 (flared and externally thickened), EvGr4 (flared and both internally and externally thickened) and EvGr5 (flared and externally thickened and shaped) rims are associated more strongly with the island assemblages. In fact only one EvGr2 rim occurs on the mainland and therefore this rim form may be considered exclusive to the islands. EvGr1 (open with a large collar), EvGr3 (flared and un-thickened), and EvGr6 (un-thickened, straight edged collar) rims are associated with the mainland assemblages (see Appendix A2 for illustrations), with only one EvGr6 rim appearing in the islands, implying this rim form to associate exclusively with the mainland. As an overall pattern, the everted rims associated with the island assemblage tend to have thickened profiles, whereas those more strongly associated with the mainland have little to no thickening of the rim.

Island Assemblage			
	O	E	Total
EvGr1	16	40.8918093	**133**
EvGr2	55	17.2176039	**56**
EvGr3	68	89.7775061	**292**
EvGr4	34	16.9101467	**55**
EvGr5	19	10.146088	**33**
EvGr6	1	35.0501222	**114**
EvGr7	17	23.6742054	**77**
EvGr8	1	1.53728606	**5**
EvGr9	3	6.14914425	**20**
EvGr10	6	4.61185819	**15**
EvGr11	0	0.61491443	**2**
EvGr12	2	0.92237164	**3**
EvGr13	3	0.92237164	**3**
EvGr14	0	0.30745721	**1**
EvGr15	0	0.30745721	**1**

Table 7. 36: Observed (O) and Expected (E) values for each everted rim form in the island sites assemblage; statistically significant associations are highlighted red (critical Chi-value for all cases = 3.84; EvGr2 actual Chi-value = >68.76, P-value = 7.2922E-28; EvGr4 actual Chi-value = 29.94, P-value = 5.9167E-07; EvGr5 actual Chi-value = 11.16, P-value = 0.000837)

Mainland Assemblage			
	O	E	Total
EvGr1	117	92.1081907	133
EvGr2	1	38.7823961	56
EvGr3	224	202.222494	292
EvGr4	21	38.0898533	55
EvGr5	14	22.853912	33
EvGr6	113	78.9498778	114
EvGr7	60	53.3257946	77
EvGr8	4	3.46271394	5
EvGr9	17	13.8508557	20
EvGr10	9	10.3881418	15
EvGr11	2	1.38508557	2
EvGr12	1	2.07762836	3
EvGr13	0	2.07762836	3
EvGr14	1	0.69254279	1
EvGr15	1	0.69254279	1

Table 7. 37: Observed (O) and Expected (E) values for each everted rim form in the mainland sites assemblage; statistically significant associations are highlighted red (critical Chi-value for all cases = 3.84; EvGr1 actual Chi-value = 21.88, P-value = 2.904E-6; EvGr3 actual Chi-value = 7.63, P-value = 0.00575; EvGr6 actual Chi-value = 47.76, P-value = 5E-12)

Although EvGr3 rims are more prevalent in the mainland assemblage, this rim form is found throughout the individual mainland and island sites with greatest frequencies in the island assemblages occurring at Entebezamikusa (43.75%) on Bugala Island, and BBK 1 (44.44%) on Bubeke Island (see Figure 7.25; high percentages at Sozi and Lolui Island can be discounted due to low rim sherd counts). Considering these two islands are at opposite ends of the archipelago in the west/east ranking, there is evidently no micro-patterning in the distribution of EvGr3 rims. However there is one connection between Entebezamikusa and BBK 1; Entebezamikusa is the oldest dated site in the archipelago so far, and it has been hypothesised that BBK 1 is the oldest of the fieldwork excavation sites based on ceramic attributes alone (see Chapter 6 Part 3, section 6.5.7).

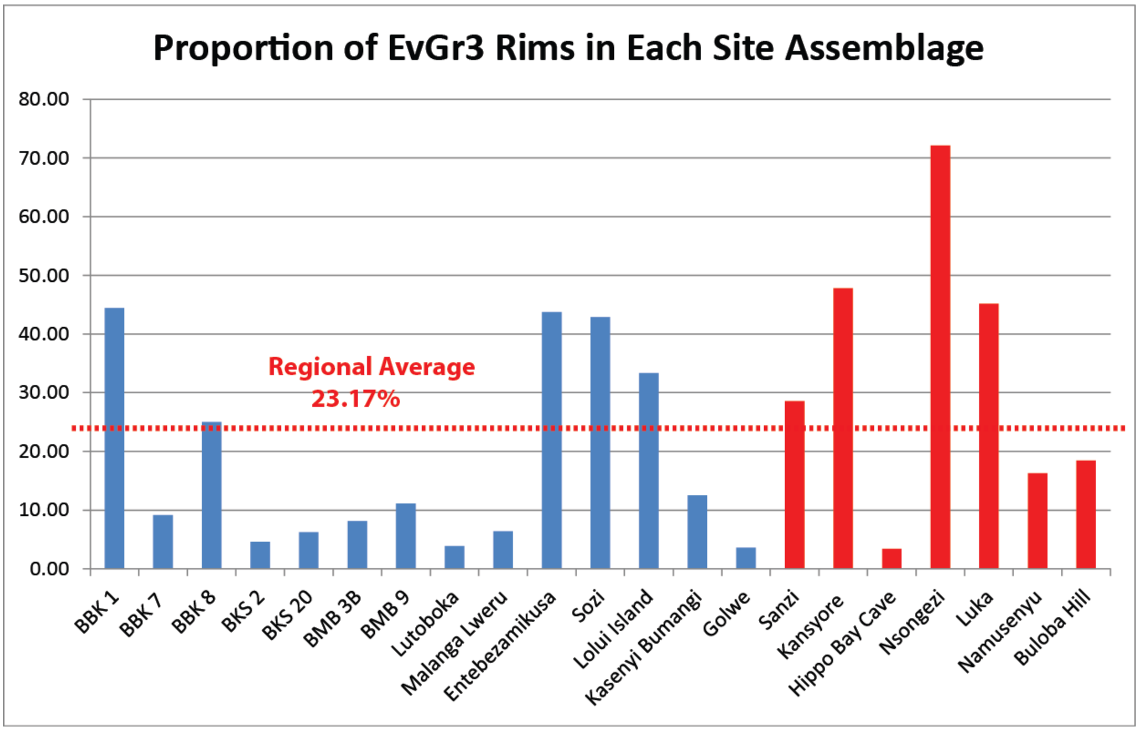


Figure 7. 25: percentage of EvGr3 rims present in each analysed site assemblage from the Lake Victoria basin (high percentages at Sozi and Lolui Island can be discounted due to low rim sherd counts) (n=292)

Table 7.38 indicates the 'Observed' and 'Expected' frequencies for each everted rim form in Bugala Island sites assemblage, and Table 7.39 provides the same information for the amalgamated fieldwork assemblages from Bubembe, Bukasa, and Bubeke Islands. On both the statistically proven associations (using the Chi Squared test) are highlighted in red. Amongst the island collections alone it is unsurprising that EvGr1 rims, which associate with open-collared bowls, CWP and grass decorations, are more prevalent in the easterly fieldwork sites and specifically on Bubeke Island. EvGr5 and EvGr7 rims (see Appendix A2 for illustrations) both have an unbalanced distribution within the islands. Although EvGr5 rims were associated with island assemblages as an amalgamated group, localised patterning within the Sesses shows a greater affinity with the most westerly isle of Bugala.

Bugala Island Sites			
	O	E	Total
EvGr1	1	7.729622266	**16**
EvGr2	10	26.57057654	**55**
EvGr3	35	32.85089463	**68**
EvGr4	12	16.42544732	**34**
EvGr5	14	9.178926441	**19**
EvGr6	0	0.483101392	**1**
EvGr7	15	8.212723658	**17**
EvGr8	0	0.483101392	**1**
EvGr9	0	1.449304175	**3**
EvGr10	3	2.89860835	**6**
EvGr11	0	0	**0**
EvGr12	1	0.966202783	**2**
EvGr13	1	1.449304175	**3**
EvGr14	0	0	**0**
EvGr15	0	0	**0**

Table 7. 38: Observed (O) and Expected (E) values for each everted rim form in the Bugala Island sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; EvGr5 actual Chi-value = 4.9, P-value = 0.02688; EvGr7 actual Chi-value = 10.85, P-value = 0.00099)

Fieldwork Sites			
	O	E	Total
EvGr1	15	8.270377734	**16**
EvGr2	45	28.42942346	**55**
EvGr3	33	35.14910537	**68**
EvGr4	22	17.57455268	**34**
EvGr5	5	9.821073559	**19**
EvGr6	1	0.516898608	**1**
EvGr7	2	8.787276342	**17**
EvGr8	1	0.516898608	**1**
EvGr9	3	1.550695825	**3**
EvGr10	3	3.10139165	**6**
EvGr11	0	0	**0**
EvGr12	1	1.033797217	**2**
EvGr13	2	1.550695825	**3**
EvGr14	0	0	**0**
EvGr15	0	0	**0**

Table 7. 39: Observed (O) and Expected (E) values for each everted rim form from the fieldwork sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; EvGr1 actual Chi-value = 11.33, P-value = 0.00076; EvGr2 actual Chi-value = 19.99, P-value = 7.7743E-06)

The distribution of EvGr7 rims follows the same spatial patterning with a preference for Bugala Island to the west of the archipelago. EvGr2 rims accompany EvGr1 rims with a greater presence in the easterly island assemblages. Only EvGr4 rims, already associated with the islands on a regional scale (see Table 7.36) have a roughly even representation in both the westerly Bugala (5% presence) and the easterly fieldwork ceramics (8% presence), suggesting this rim to represent a universal form distinctive of the Sesse Islands as a socio-political unit different to the mainland.

Tables 7.40 and 7.41 indicate the 'Observed' and 'Expected' counts for each thickened rim form in the island and mainland assemblage, with individual forms exhibiting a statistical association to each collection highlighted in red. Regionally ThGr2 rims (closed and internally thickened) are uniquely abundant in mainland assemblages, whilst ThGr3 (closed and externally thickened) and ThGr6 rims (closed and both internally and externally thickened) are distinctive of the island assemblages. Only one ThGr6 rim features in any mainland collection, suggesting this rim is uniquely associated with the Sesse Islands.

Mainland Assemblage			
	O	E	Total
ThGr1	4	8.310513	**12**
ThGr2	275	219.5361	**317**
ThGr3	13	69.25428	**100**
ThGr5	5	7.617971	**11**
ThGr6	1	11.08068	**16**
ThGr7	2	2.077628	**3**
ThGr8	7	11.77323	**17**
ThGr9	1	2.077628	**3**
ThGr10	3	4.155257	**6**
ThGr11	4	2.770171	**4**
ThGr12	2	2.770171	**4**
ThGr13	6	6.925428	**10**
ThGr14	1	6.925428	**10**
ThGr15	1	0.692543	**1**

Table 7. 40: Observed (O) and Expected (E) values for each thickened rim form in the mainland sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; ThGr2 actual Chi-value = 45.58, P-value 1.469E-11)

Island Assemblage			
	O	E	Total
ThGr1	8	3.689487	**12**
ThGr2	42	97.46394	**317**
ThGr3	87	30.74572	**100**
ThGr5	6	3.382029	**11**
ThGr6	15	4.919315	**16**
ThGr7	1	0.922372	**3**
ThGr8	10	5.226773	**17**
ThGr9	2	0.922372	**3**
ThGr10	3	1.844743	**6**
ThGr11	0	1.229829	**4**
ThGr12	2	1.229829	**4**
ThGr13	4	3.074572	**10**
ThGr14	9	3.074572	**10**
ThGr15	0	0.307457	**1**

Table 7. 41: Observed (O) and Expected (E) values for each thickened rim form in the island sites assemblage; statistically significant associations are highlighted red (critical Chi value in all cases = 3.84; ThGr3 actual Chi-value = >68.76, P-value =3.4707E-34; ThGr6 actual Chi-value = 29.83, P-value = 4.72E-08)

Amongst the mainland sites ThGr2 rims indicate a selective preference for Hippo Bay Cave (see Table 7.31 and Figure 7.26); within the islands the same rim form associates with the westerly Bugala Island (see Table 7.42), with an almost exclusive appearance at Malanga Lweru on this island (see Figure 7.26; note the high proportion at Kasenyi Bumangi can be discounted due to a low rim sherd count of eight skewing the percentage data). This enhances the notion that Malanga Lweru held a privileged position of trade with the mainland societies.

ThGr2 Rim Form			
	O	E	Total
Bugala Sites	33	20.29025845	**243**
Fieldwork Sites	9	21.70974155	**260**
Total	**42**	**42**	**503**

Table 7. 42: Observed (O) and Expected (E) values for the ThGr2 rim form from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 15.4; P-value = 8.689E-05)

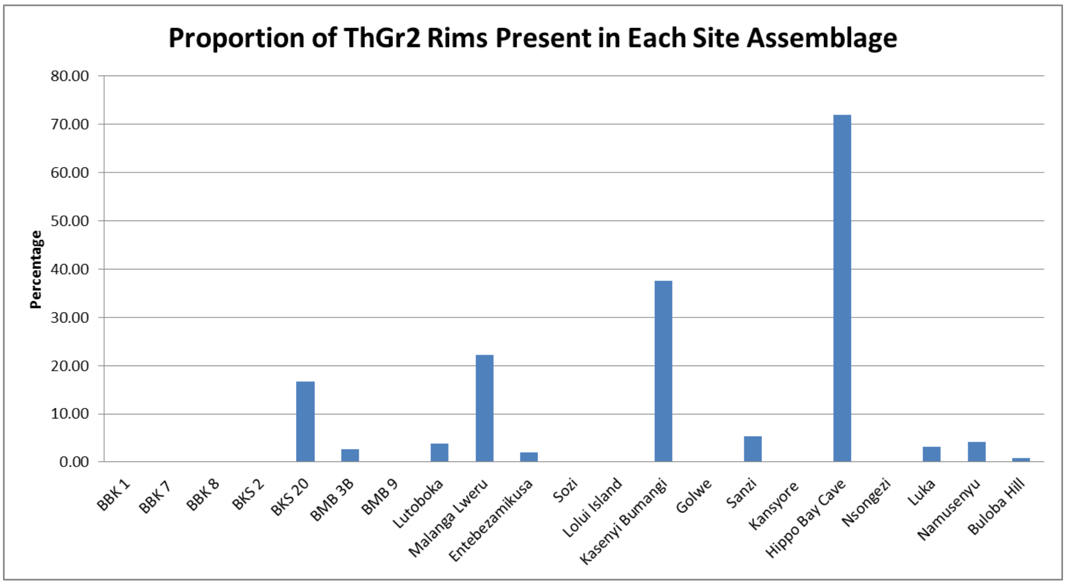


Figure 7. 26: percentage of ThGr2 rims present in each analysed site assemblage from the Lake Victoria basin (note that the high proportion at Kasenyi Bumangi can be discounted due to low total rim sherd numbers) (n=317)

Furthermore, where ThGr2 rims do appear in the islands further east in the archipelago they are almost exclusive to BKS 20, enhancing the notion that BKS 20 also held a privileged position within the regional trade network. ThGr6 rims, which are not especially numerous with only 16 examples, are a distinctive island rim form which is almost exclusive to Malanga Lweru and may represent a distinct style which emerged as definitive of the local population amongst the plethora of more widely traded ceramic forms (see Figure 7.27).

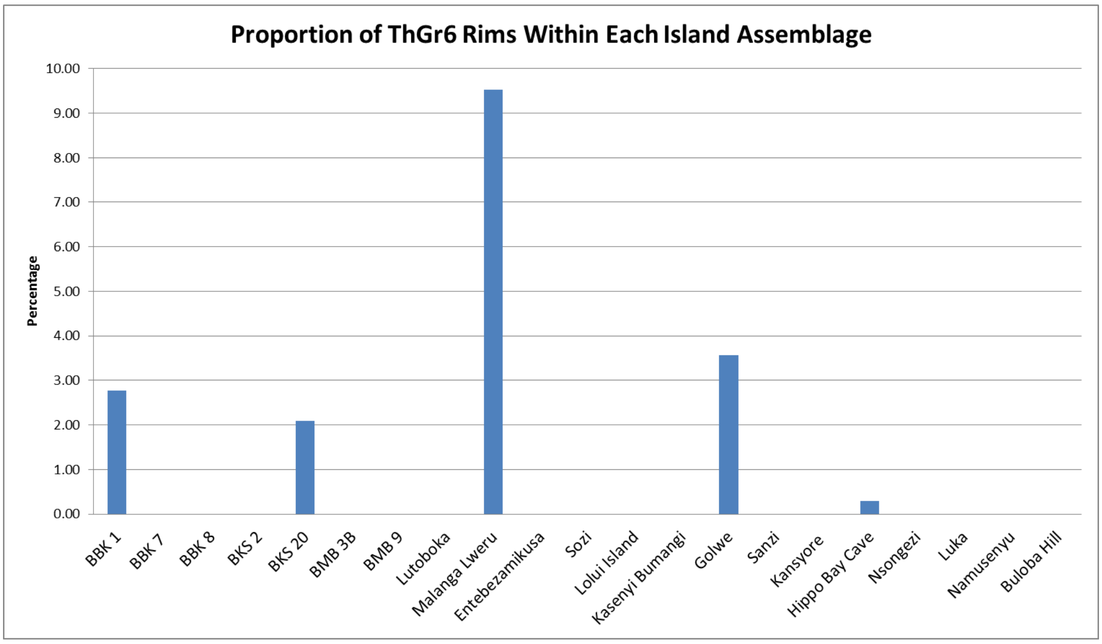


Figure 7. 27: percentage of ThGr6 rims present in each analysed site assemblage from the Lake Victoria basin (n=16)

ThGr3 rims, which are more frequently found in the islands than on the mainland (see Tables 7.40 and 7.41 and Figure 7.31), have a distributional preference for the easterly fieldwork sites with a dominance at BKS 2, though a presence also at BBK 1 and BBK 7 implying the rim form is not just isolated to the vicinity of Bukasa (see Table 7.43 and Figure 7.28).

ThGr3			
	O	E	Total
Bugala Sites	12	42.02982	**243**
Fieldwork Sites	75	44.97018	**260**
Total	**87**	**87**	**503**

Table 7. 43: Observed (O) and Expected (E) values for the ThGr3 rim form from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 41.51; P-value = 1.1733 E-10)

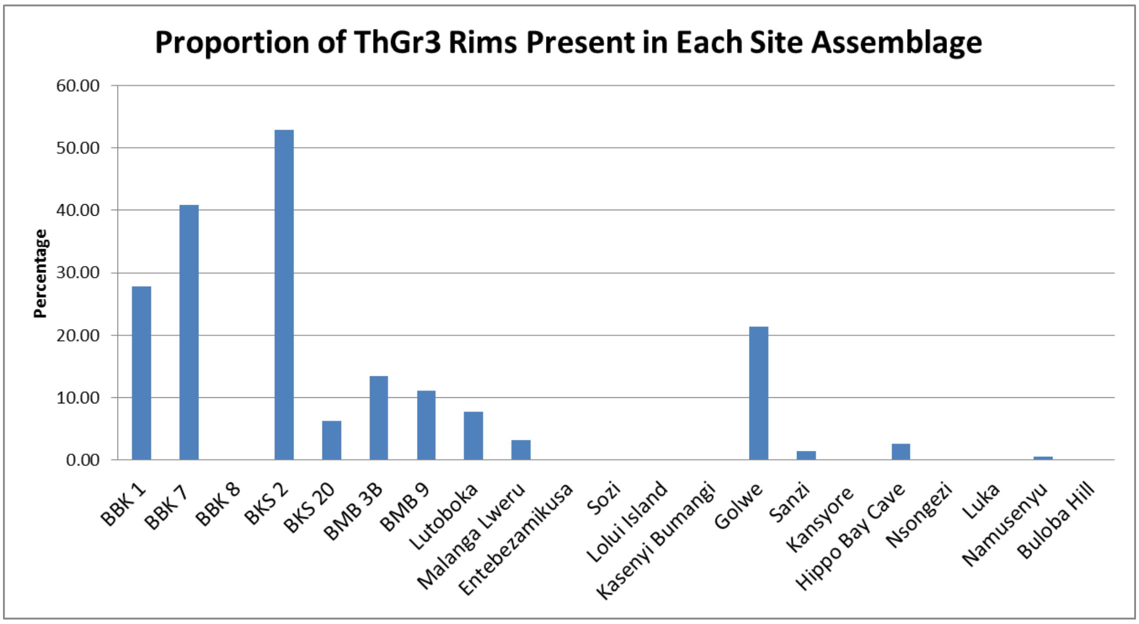


Figure 7. 28: percentage of ThGr3 rims present in each analysed site assemblage from the Lake Victoria basin (n=100)

Regionally all three simple rim forms have a general presence in both mainland and island assemblages with no distributional patterning. However within the island assemblages both SGr1 (simple closed bowl) and SGr2 (simple open bowl) rims are more prevalent on Bugala than at the fieldwork sites further east (see Tables 7.44 and

7.45), with only straight sided SGr3 bowls evenly distributed throughout the islands with an appearance of 4% in the Bugala collection and 3% in the amalgamated fieldwork sites assemblage (see Appendix A2 for illustrations of each simple rim form).

SGr1 Rim Form			
	O	E	Total
Bugala Sites	33	22.22266402	**243**
Fieldwork Sites	13	23.77733598	**260**
Total	**46**	**46**	**503**

Table 7. 44: Observed (O) and Expected (E) values for the SGr1 rim form from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 10.11; P-value = 0.00147)

SGr2 Rim Form			
	O	E	Total
Bugala Sites	21	12.56064	**243**
Fieldwork Sites	5	13.43936	**260**
Total	**26**	**26**	**503**

Table 7. 45: Observed (O) and Expected (E) values for the SGr2 rim form from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 10.97; P-value = 0.000926)

Considering the greater abundance of SGr1 rims on Bugala Island, amongst the fieldwork island sites further east SGr1 rims have a far greater presence at BKS 20 than anywhere else (see Figure 7.29), suggesting this site engaged more widely in trade with the populations on Bugala.

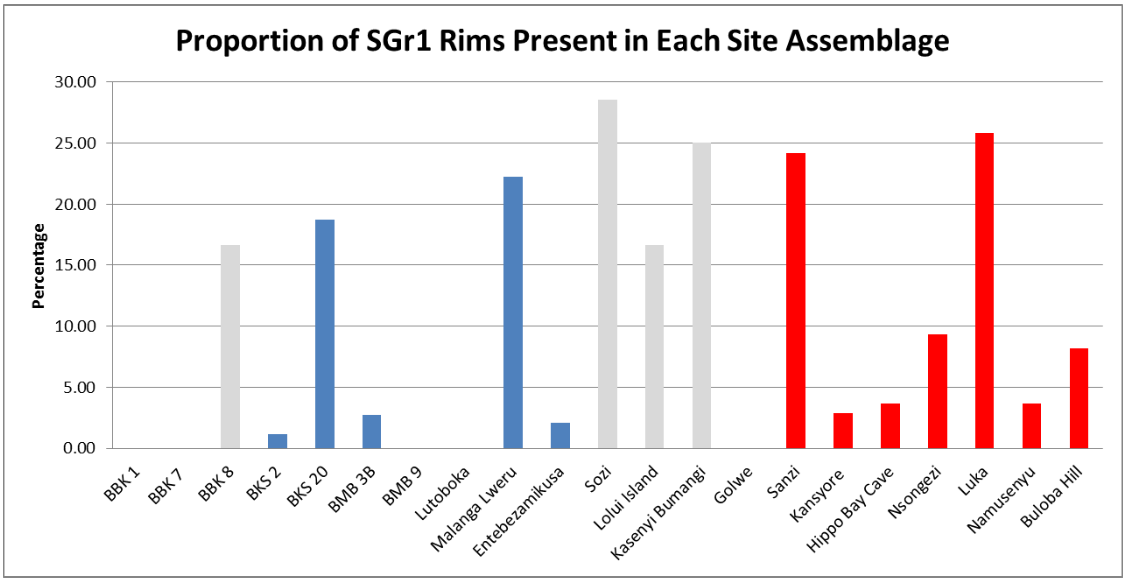


Figure 7. 29: percentage of SGr1 rims present in each analysed site assemblage from the Lake Victoria basin. Mainland sites are highlighted in red, and sites with low rim sherd counts which skew the percentage data are faded in grey (n=149)

7.3.4 Rim Diameters and Rim Thickness: Individual Site Comparison

The only distinctive regional patterns in rim thickness and rim diameter is the presence of narrow RD2 diameters (10-13cm) at four times the expected number in the Nsongezi assemblage (see Table 7.46), thick RT5 rims (2.0-2.2cm) at three times the expected level within the Hippo Bay Cave assemblage (see Table 7.47), and thickened RT5/RT6 rims (2.0-2.9cm) at four times the expected level amongst the BKS 2 rims when compared with the regional averages (see Table 7.48).

Nsongezi			
	O	E	Total
RD2	21	5.655255	**214**
All Other Rim Diameters	23	38.34474	**1451**
Total	**44**	**44**	**1665**

Table 7. 46: Observed (O) and Expected (E) values for RD2 diameter rims from Nsongezi when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = 47.78; P-value = 4.77694E-12)

Hippo Bay Cave			
	O	E	Total
RT5	73	25.89657	**122**
All Other Rim Thickness	280	327.1034	**1541**
Total	**353**	**353**	**1663**

Table 7. 47: Observed (O) and Expected (E) values for RT5 thickness rims from Hippo Bay Cave when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 6.87E-22)

BKS 2			
	O	E	Total
RT5+RT6	43	11.45700541	**219**
All Other Rim Thickness	44	75.54299459	**1444**
Total	**87**	**87**	**1663**

Table 7. 48: Observed (O) and Expected (E) values for RT5 and RT6 thickness rims from BKS 2 when compared to all analysed assemblages in the Lake Victoria Basin (critical Chi-value = 3.84; actual Chi-value = >68.76; P-value = 1.5134E-23)

7.3.5 Rim Diameters and Rim Thickness: Regional Comparison

Tables 7.49 and 7.50 indicate the ‘Observed’ and ‘Expected’ frequencies for each rim diameter size category from the mainland and the island assemblages in comparison to one another. Statistically significant associations in each table are highlighted in red. Regionally small to medium sized RD2/RD3 (10-18cm) vessels are more prevalent on the mainland, with very large RD7 (32-42cm) vessels abundant on the islands. Medium to large RD4-RD6 vessels (19-31cm) are well represented in both island and mainland assemblages. Potentially the unstable/limited resources on the islands may call for more long term storage of goods, hence the need for larger vessels.

Mainland Assemblage			
	O	E	Total
RD1	27	24.30379747	35
RD2	166	147.2115732	212
RD3	346	322.8933092	465
RD4	300	290.2567812	418
RD5	157	160.4050633	231
RD6	98	103.4647378	149
RD7	58	103.4647378	149
Total	1152	1152	1659

Table 7. 49: Observed (O) and Expected (E) values for each rim diameter size category in the mainland sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; RD2 actual Chi-value = 7.85, P-value = 0.00509; RD3 actual Chi-value = 5.41, P-value = 0.02001)

Island Assemblage			
	O	E	Total
RD1	8	10.69620253	35
RD2	46	64.78842676	212
RD3	119	142.1066908	465
RD4	118	127.7432188	418
RD5	74	70.59493671	231
RD6	51	45.53526221	149
RD7	91	45.53526221	149
Total	507	507	1659

Table 7. 50: Observed (O) and Expected (E) values for each rim diameter size category in the island sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; RD7 actual Chi-value = 65.23, P-value = 6.2E-16)

Within the island assemblages the RD2/RD3 sized vessels which are most often associated with the mainland exhibit no west to east patterning. However medium to large RD4/RD5 rims are more strongly associated with the western Bugala sites and the largest RD7 rims with collections further east (see Tables 7.51, 7.52 and 7.53).

RD4 Sized Rim Diameters			
	O	E	Total
Bugala Sites	68	56.32347	242
Fieldwork Sites	50	61.67653	265
Total	118	118	507

Table 7. 51: Observed (O) and Expected (E) values for the RD4 rim diameter category from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 4.63; P-value = 0.03139)

RD5 Sized Rim Diameters			
	O	E	Total
Bugala Sites	44	35.3215	242
Fieldwork Sites	30	38.6785	265
Total	74	74	507

Table 7. 52: Observed (O) and Expected (E) values for the RD5 rim diameter category from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 4.08; P-value = 0.04341)

RD7 Sized Rim Diameters			
	O	E	Total
Bugala Sites	31	43.4359	242
Fieldwork Sites	60	47.5641	265
Total	91	91	507

Table 7. 53: Observed (O) and Expected (E) values for the RD7 rim diameter category from the Bugala Island sites and the Fieldwork sites on Bubembe, Bukasa, and Bubeke Islands (critical Chi-value = 3.84; actual Chi-value = 6.81; P-value = 0.009055)

In accordance with the rim form data, all rims with any thickening from RT2-RT7 (1.1-4.0cm) are present in significantly high numbers in the islands, whereas the thinnest RT1 rims (0.1-1cm) are underrepresented and have a greater affinity with mainland sites (see Tables 7.54 and 7.55). However the distribution of rim thicknesses within the islands themselves is uneven; the thinnest RT1 and RT2 rims have a stronger association with Bugala Island, and as individual assemblages Malanga Lweru, Lutoboka, Sozi, BBK 1, BBK 7, BKS 20, and BMB 3B all have RT1 rims as most abundant in their assemblage. Thicker RT3-RT6 rims have a greater association with the fieldwork sites located further east of Bugala (see Tables 7.56 and 7.77).

Island Assemblage			
	O	E	Total
RT1	208	312.7060954	1022
RT2	65	47.12009656	154
RT3	62	37.32890766	122
RT4	53	37.94085697	124
RT5	48	37.32890766	122
RT6	57	29.67954134	97
RT7	14	4.895594448	16
Total	507	507	1657

Table 7. 54: Observed (O) and Expected (E) values for each rim thickness size category in the island sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases =3.84; RT2 actual Chi-value = 9.78, P-value = 0.001768; RT3 actual Chi-value = 23.49, P-value = 1.25E-06; RT4 actual Chi-value = 8.61, P-value = 0.003339; RT5 actual Chi-value = 4.4, P-value = 0.03603; RT6 actual Chi-value = 36.24, P-value = 1.75E-09; RT7 actual Chi-value = 24.4, P-value = 7.84E-07)

Mainland Assemblage			
	O	E	Total
RT1	814	709.2939046	1022
RT2	89	106.8799034	154
RT3	60	84.67109234	122
RT4	71	86.05914303	124
RT5	74	84.67109234	122
RT6	40	67.32045866	97
RT7	2	11.10440555	16
Total	1150	1150	1657

Table 7. 55: Observed (O) and Expected (E) values for each rim thickness size category in the mainland sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; RT1 actual Chi-value = 50.52, P-value = 1.1874E-12)

Bugala Island Sites			
	O	E	Total
RT1	128	99.69230769	208
RT2	44	31.15384615	65
RT3	20	29.71597633	62
RT4	16	25.40236686	53
RT5	12	23.00591716	48
RT6	15	27.31952663	57
RT7	8	6.710059172	14
Total	243	243	507

Table 7. 56: Observed (O) and Expected (E) values for each rim thickness size category in the Bugala Island sites assemblage; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; RT1 actual Chi value = 15.44, P-value = 8.53203E-05; RT2 actual Chi-value = 10.17, P-value = 0.001425)

Fieldwork Sites			
	O	E	Total
RT1	80	108.3076923	208
RT2	21	33.84615385	65
RT3	42	32.28402367	62
RT4	37	27.59763314	53
RT5	36	24.99408284	48
RT6	42	29.68047337	57
RT7	6	7.289940828	14
Total	264	264	507

Table 7. 57: Observed (O) and Expected (E) values for each rim thickness size category from the fieldwork sites on Bubembe, Bukasa, and Bubeke Islands; statistically significant associations are highlighted red (critical Chi-value in all cases = 3.84; RT3 actual Chi-value = 6.10, P-value = 0.013512; RT4 actual Chi-value = 6.68, P-value = 0.009731; RT5 actual Chi-value = 10.11, P-value = 0.001473; RT6 actual Chi-value = 10.67, P-value = 0.00109)

7.4 Summary of Comparative Site Analysis, and a discussion of Regional Patterning

7.4.1 Individual Assemblage Patterns

The fieldwork sites BKS 20 and BBK 1 both stood out in the excavation analysis with a distinctively high proportion of fine grained, grog tempered ceramics (see chapter 6). This association is maintained on a regional level with neither fine grained clays nor grog inclusions featuring prominently at any other site (see Tables 7.2, 7.3 and Figure 7.5 in this chapter), suggesting these attributes may be localised to the Sesse Islands. The only other island sites with any distinctly associated attribute on a regional scale are BKS 2, with its uniquely high proportion of ThGr3 closed and externally thickened bowl rims, which also gives it a uniquely high proportion of RT5-RT6 rim thicknesses (see Table 7.48), and Malanga Lweru on Bugala Island, which has a high proportion of both ThGr6 (closed and both internally and externally thickened) and ThGr2 (closed and internally thickened) rims, as well as limestone/shell inclusions (see Table 7.11). Malanga Lweru is the only site with associations to limestone/shell inclusions and ThGr6 rims, which again may be indicative of a localised ceramic style.ThGr2 rims feature prominently at Hippo Bay Cave (see Table 7.31), along with an overrepresentation of bowls (see Table 7.20), and comb and TGR decorations at the regional level (see Figures 7.17 and 7.21). Comb decorations also feature frequently on the Buloba Hill ceramics (see Table 7.14 and Figure 7.21), which have a unique association with the rare collared jar vessel form and its associated EvGr6 rim (see Table 7.28). Namusenyu on the mainland has a unique association with open-collared bowls and their EvGr1 rim forms (see Tables 7.21 and 7.26), along with cord-wrapped paddle, KPR, and stylus decorations (see Table 7.15 and Figures 7.19 and 7.20). Within the islands open-collared bowls, CWP and EvGr1 rims associate almost exclusively with site BBK 7 (see Figure 7.18 and Chapter 6 Part 1 and Part 2 section 6.2.6) which is located on the most remote island in this study. This may imply some kind of direct contact between Namusenyu on the northern lakeshore and BBK 7 in the northwest of the archipelago. Whilst BBK 7 open-collared bowls also feature grass decorations on the interior, grass is absent from all 109 EvGr1 rims recorded at Namusenyu, suggesting that any trade between the two was in knowledge of manufacturing techniques rather than the finished product, with BBK 7 producing its own distinct open-collared bowls (this is discussed further in Chapter 8).

7.4.2 Cluster of Sites with Similar Ceramic Attribute Patterning

Initially statistical testing which compared the individual site collections to one another highlighted certain sites or groups of sites with unique ceramic attribute associations. An excellent example of distinct regional patterning comes from the two Kagera River sites Nsongezi and Kansyore, located in south-western Uganda (see Figure 7.1). Consider the initial Nsongezi date of 1025 ±250 AD had been widely rejected (Ashley 2005), and Kansyore is assumed to have an LSA date for its ceramic assemblage (Chapman 1967), the similar ceramic attribute patterning (illustrated in Figure 7.30) based upon an assessment of all attributes from all ceramics present at both sites suggests that the sites were either contemporaneous, or for over 1,500 years the ceramic manufacturing did not alter.

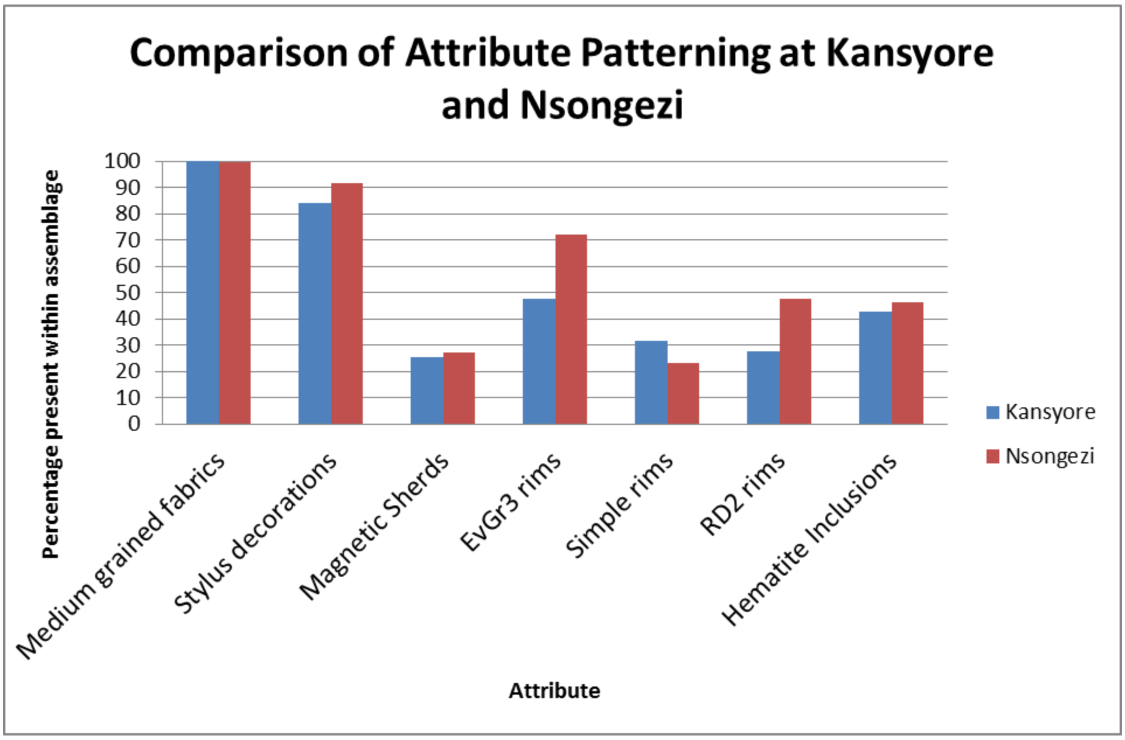


Figure 7. 30: attribute patterning between the Kansyore and Nsongezi ceramic assemblages, highlighting the similarities in the manufacturing traditions of the two sites

Both ceramic assemblages are almost exclusively constructed from medium grained clays with hematite inclusions and stylus decorations. Although levels of magnetism at both site are not high enough to be considered significant on a regional level due to higher frequencies of magnetic sherds within the islands, magnetism at Nsongezi and Kansyore *is* significant when compared to other mainland sites. The only difference between the two assemblages is a dominance of simple bowl forms at Kansyore, whereas the Nsongezi assemblage features flared and un-thickened EvGr3 rimmed jars most prominently. Despite the vast difference between the radiocarbon date for Nsongezi and the typological proxy-date for Kansyore, researchers have suggested a much older sequence of occupation at Nsongezi due to the presence of stone tools (Cole 1967), and the use of the attribute analysis method appears to support this assumption as well as perhaps indicating unique localised ceramic traits which may partly be due to the availability of certain raw materials.

7.4.3 Wider Regional Patterning in Ceramic Attributes

One concern of this study was to examine diversity in ceramic attribute patterning throughout the region to ascertain whether differences exist between the ceramic traditions of the islands and the mainland society, and whether the ceramic patterning can elucidate locales of trade as well as the presence or lack of social boundaries within the Great Lakes region. Due to aforementioned problems with a lack of contemporaneously dated ceramic assemblages across the region as well as a low number of dated sites in general, and a reliance on dating by contextual association in a region where post-depositional mixing is commonplace, no comment can be made about change in ceramic attributes over time in the comparative collections. However spatial patterns can be examined through the comparison of overall site assemblages.

Regional consideration of data reveals locales with specific ceramic manufacturing traditions with relation to local geologies, and possible evidence for isolated trade and interaction between certain clusters of sites (Nsongezi and Kansyore, BKS 20 and BBK 1, and between Namusenyu and BBK 7). A comparison between the amalgamated island and amalgamated mainland ceramics revealed that the island assemblages as a whole are very different to the mainland. Table 7.58 lists all attributes with significant associations to either the mainland or island assemblages. Attributes with no distributional tendency are stylus decorations, proportions of undecorated sherds, generic bowl vessel forms, everted and simple rims as manufacturing groups, SGr3 straight sided bowls, and medium to large RD4 to RD6 sized vessels. All other attributes show regional patterning between the island and mainland assemblage, emphasising once again how inappropriate it is to extrapolate ceramic data from one site and typologically apply it to all other sites in the region. From the table of differences between the islands and the mainland we can immediately see there is a greater range of variability in the island ceramics with more inclusions, fabric grain sizes, rim forms and rim thicknesses present.

	MAINLAND	Island
fabric coarseness	medium	coarse/fine
Decoration	CWP/comb/TGR	KPR/CWR/Grass
Magnetism	Not magnetic	Magnetic
Vessel Form	OC Bowl/Collared Jar	Jar
Rim Form	EvGr1/3/6/ ThGr2	EvGr2/4/5/ ThGr3/6
Rim Diameter	RD2/RD3	RD7
Rim Thickness	RT1	RT2-7
Inclusions	Feldspar/Quartz	hematite/Mica/Limestone/Grog/Rose Quartz

Table 7. 58: List of ceramic attributes with statistically significant associations to the mainland and island assemblages

One theory about island environments is a broad reduction in the availability of raw materials compared to the mainland; however despite a homogenous sandstone geology dominating the archipelago, there appears to be a greater variability within the island ceramics. Therefore, the islands are not privy to a wider range of resources than the mainland sites to the north, which have access to a wider range of geologies. An explanation stems back to the ethno-historic data positing the Sesse Islands as a heightened locale of interaction due to their privileged position within the wider Great Lakes cosmology, which apparently attracted pilgrims from far and wide with offerings for the traditional religious spirits (Berger 1973; Phillipson 1977; Roscoe 1911; 1907; Reid 2002; Kyewalyanga 1976; Gray 1910; 1935; MacQueen 1911; Soff 1969; Schmidt 1978; O'Donohue 1997; Kasozi 1981; Ray 1977; 1991; Welbourn 1962; Kagwa 1934; Wilson 1880; Jackson and Gartlan 1965; Kenny 1977). Thus, archaeological data may indeed hold evidence of increased interaction with external populations inside the island environment when compared to the lesser diversity of mainland assemblages, rather than isolation in the development, production and procurement of ceramics.

EvGr2 (flared and externally thickened) and ThGr6 (closed and both internally and externally thickened) rims are both unique to the islands with only one sherd of each appearing in the mainland assemblage, indicating that some unique Sesse ceramic styles did exist perhaps to distinguish island ceramics from the plethora of mainland ceramics appearing in the archipelago due to the heightened trade/interaction.

To return to the notion of the Islands as a place of spiritual importance, and the notion that jars may be higher in number in the islands due to the common practice by pilgrims of offering liquids to the spirits, the unique association of EvGr2 jar rims with the islands and with a widespread presence throughout the archipelago yet an absence from the mainland may be indicative of a specific rim form applied solely to vessels used in spiritual offerings as a differentiation from utilitarian vessels. A quick analysis of attributes associated with EvGr2 rims indicates they are constructed from both coarse and medium grained fabrics, 36% are magnetic, the dominant inclusions are quartz, mica, and hematite (which are found throughout the island and mainland geologies) with infrequent feldspar and rose quartz, and EvGr2 vessels appear with a wide range of rim diameters and thicknesses. Decorative techniques are limited to either being undecorated or KPR rouletted. This limited decorative range is curious since EvGr2 vessels come from a considerable range of different manufacturing backgrounds in terms of vessel sizes and fabrics.

Only EvGr6 rims (un-thickened and collared) are unique to the mainland and specifically to Buloba Hill and Hippo Bay Cave, suggesting a local rather than widespread manufacturing tradition. Similarly, whilst EvGr2 rims are spread throughout the islands, ThGr6 rims are unique to Malanga Lweru. Comments have been made earlier in this chapter of the potential position of Malanga Lweru at the centre of regional trade networks, exemplified by the presence of snapped cane glass beads (Ashley 2005), and this may represent a localised style as distinct from the incoming trade goods.

The previous chapter examined differences in island ceramic patterning amongst collections from Bubembe, Bukasa and Bubeke. Table 7.59 shows the difference between the comparative assemblages from Bugala Island, which is the westernmost island in the archipelago and closest to the mainland, and the fieldwork islands further east. Here only the EvGr4 rims and very thick RT7 rims are evenly represented in the two collections with all other attributes indicating some intra-islands patterning. In this table we can see that levels of diversity on Bugala are much greater than in the islands to the east, supporting the notion that islands closer to the mainland engaged in more frequent trade with populations outside the archipelago, most likely due to ease of access. TGR decorations and rose quartz inclusions both showed a decrease in an easterly direction further from the mainland in the fieldwork site analysis, and here both traits are associated with the most westerly island Bugala, confirming the association between proximity to the mainland and these two attributes. Grass decorations, cord wrapped paddle decorations, and open-collared bowls are completely absent from the Bugala assemblage, with a presence only further east in the archipelago.

	Bugala	East Islands
fabric coarseness	coarse	medium/fine
Decoration	TGR/Comb	KPR/CWP/Grass
Magnetism	Not magnetic	Magnetic
Vessel Form	Bowl/Collared Jar	Jar/OC Bowl
Rim Form	EvGr5/EvGr7/ThGr6/SGr1/SGr2	EvGr1/EvGr2/ThGr3
Rim Diameter	RD4/RD5	RD7
Rim Thickness	RT1/RT2	RT3-RT6
Inclusions	quartz/hematite/limestone/rose quartz	grog/mica

Table 7. 59: A list of the ceramic attributes with a significant statistical association to either the Bugala Island assemblage or assemblages further east in the Sesse archipelago

It appears that there is great variability in ceramic traditions overall within the islands. Considering the predominance of sandstone geologies across the archipelago with an isolated appearance of the Buganda geological group on Bugala Island (Westerhof et al. 2014), the greater fabric/inclusions diversity on Bugala island may be reflect of this access to a greater range of raw materials, as well as proximity to the mainland promoting trade. The huge variability beyond ceramic fabrics that is present exemplifies an abundance of trade and interaction between the islands and external populations, as well as a lack of internal social cohesion between the islands with several socio-economic units expressing their own ceramic style through their manufacturing and production knowledge.

The detailed analysis of the island collections between one another and with the mainland revealed two possible lacustrine trade centres. Malanga Lweru on Bugala Island has already been interpreted as a trade hub in previous research due to the presence of foreign non-ceramic goods (Ashley 2005). The greater presence of ceramic attributes at Malanga Lweru distinctly associated with mainland assemblages with a reduced appearance in other island assemblages provides ceramic evidence for Malanga Lweru's position as a trade centre (e.g. ThGr2 rim forms and comb decorations). The assemblage from Bukasa 20 also features the same mainland attributes present at Malanga Lweru though in lesser quantities (see Table 7.60), as well as the ThGr6 rim form which is almost unique to Malanga Lweru and rare in other island locales. In return ceramic traits almost unique to Bukasa 20, primarily fine grained clays and grog inclusions, appear at Malanga Lweru. The ceramic data therefore suggests that Malanga Lweru traded directly with adjacent mainland populations, and BKS 20 traded with Malanga Lweru to obtain mainland ceramics rather than trading with the mainland populations themselves due to isolation and less ease of access.

	Average for Fieldwork Island Sites	BKS 20	Malanga Lweru	Average for Bugala Island Sites
Fine Grained Fabrics	14.01	40.2	2.85	1.82
Grog Tempers	7.32	21.06	2.24	1.53
Limestone/shell Inclusions	0.64	1.91	2.9	0.84
Comb Decorations	3.2	10.78	23.1	7.41
ThGr6 Rim Forms	0.69	2.08	9.52	1.87
ThGr2 Rim Forms	2.77	16.67	22.22	9.38
SGr1 Rim Forms	5.61	18.75	22.22	13.51

Table 7. 60: Table comparing the percentage presence of attributes uniquely associated with both the Malanga Lweru and BKS 20 assemblages to the Bugala and Fieldwork Island averages

7.4.4 A Comment on Typological Dating in the Lake Victoria Basin Light of the New Ceramic Data

A major problem with the use of ceramic typologies is the lack of dated deposits; only six of the comparative sites are dated and none of the dates overlap. Therefore assumed associations between attribute patterning and age cannot be confirmed without several deposits of the same age from different sites for comparison. A secondary problem with attempted ceramic chronologies involves potential problems with radiocarbon dating in tropical environments. Currently ascribed site dates are derived from charcoal, the presence of which is then used to date an entire archaeological context and thus any associated ceramic. However the tropical soils within the study region are subject to bioturbation and potential mixing of the ceramics or movement of dated organics. This is not to mention potential problems with 'old wood'. OSL dating on the other hand dates the ceramic directly regardless of post-depositional mixing. Therefore extensive OSL dating is needed before ceramic styles can be attributed a date. One example of these dating difficulties can be seen in the case of Nsongezi and BKS 20. Considering the error margins for both dates there is a possibility that Nsongezi and BKS 20 may actually be contemporaneous, at least for part of their occupation. However not a single attribute pattern is shared between the sites. Figure 7.31 charts the presence of each attribute with any statistically proven association to either collection; fine grained fabrics and grog inclusions feature significantly at BKS 20 but are completely absent in the Nsongezi ceramics. Conversely medium grained fabrics, hematite inclusions, stylus decorations, magnetism, EvGr3 rims forms and RD2 rim diameters are all distinct of the Nsongezi ceramics and yet barely feature in the BKS 20 collection, despite the overlap in the dates for the two sites. This implies that proxy dating by ceramic typology is not necessarily appropriate on a vast regional scale, as here is direct evidence for two contemporaneously dates sites with very different ceramic associations.

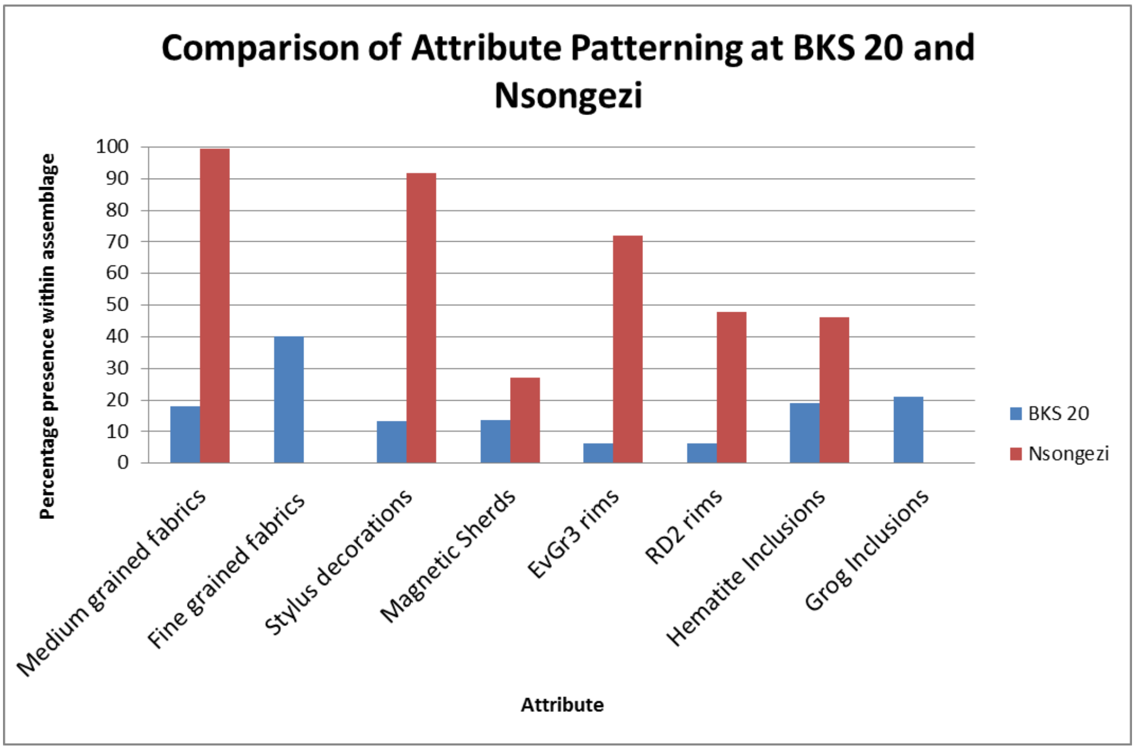


Figure 7. 31: Graph of the attribute patterning between the Nsongezi and BKS 20 ceramic assemblages, highlighting the great differences in the manufacturing traditions of the two sites(n=650)

Attribute patterning seems to only reflect temporal change on a micro scale rather than a regional scale. Considering the large distances between some sites in the Great Lakes region and Gosselain's ethnographic study revealing vast differences in ceramic styles over smaller geographic areas in West Central Africa (Gosselain 1992), it cannot be assumed that temporal patterning in one localised part of the Great Lakes region can be extrapolated onto a disjunctive social group in another part of the region. Instead efforts must be made to identify localised attribute patterning which is reflective of temporal change within a single archaeological entity or socio-economic group. Such clusters of similarities do emerge in this regional analysis; most tellingly the plethora of similarities between the assemblages of Kansyore and Nsongezi (prevalence of medium grained fabrics, hematite inclusions, stylus decorations, and un-thickened rim forms), which share a similar niche location on the Kagera River and may have accessed the same raw materials for their ceramic manufacturing traditions. Attribute patterning from BKS 20, which exhibited well stratified and dated deposits, is very different to any other site in the region except BBK 1, located on an adjacent island within the archipelago; both assemblages contained a unique abundance of fine grained clays and grog inclusions. However, spatial patterning in attributes must be recognised as separate to temporal patterning until future research bridges the gap between the two through an understanding of micro as well as macro styles of ceramic patterning.

Chapter 8: Discussion of Results

Chapters 5, 6 and 7 have presented new data accumulated during the course of this study on the archaeology and ceramic history of the Sesse Islands and the surrounding Lake Victoria Basin. In light of this data we can return in the current chapter to major themes presented in Chapter 1 and consider how this new archaeological information offers an interpretation on the development of regional ceramic chronologies. The new data is also used to examine the principles of Coastal and Island Archaeology highlighted in chapter 1 and considers the material evidence for interactions between island and coastal populations. Finally we consider the material ramifications of the importance of the Sesse Islands as a historic centre of cult activity operating in a liminal position beyond immediate political influence of the surrounding kingdoms. Following these discussions, it is also relevant to discuss themes which may affect the interpretation of ceramic data such as the use of OSL over radiocarbon dating, and the utility of ceramic ethnography and historical linguistics in understanding archaeological remains.

8.1 Reconsidering previous ceramic methodologies and typologies employed within the Great Lakes region

In a reconsideration of the previous ceramic typology employed in the Great Lakes region, it is necessary to critique the methodological approaches used in its construction. The dataset for this typology stemmed from Ashley's (2005; 2010) relatively recent reanalysis of ceramics gathered during colonial research in the Lake Victoria Basin and by foreign scholars after independence (i.e. collections from Lolui Island, Buloba Hill, Luzira Hill, Hippo Bay Cave, and the Entebbe Peninsula), alongside an analysis of material uncovered during systematic research by Andrew Reid (new collections from the previously recorded sites of Lolui Island and Buloba Hill, as well as collections from the newly recorded sites Namusenyu, Sanzi, Sozi, Luka, Malanga Lweru, Lutoboka, and Kasenyi Bumangi), and new material uncovered by Paul Lane in the north-east sector of the lake basin in modern day Kenya (collections from the Siaya District, including Usenge 3 and Haa). From her re-analysis Ashley devised a chronological sequence in the development and change of Great Lakes ceramics, beginning with the rare Late Stone Age 'Kansyore Ceramics', followed by the more abundant 'Urewe ceramics' in the Early Iron Age. These were superseded by 'Transitional Ceramics' in the period of transition between the Early and Late Iron Ages, and finally the appearance of 'Roulette ceramics' at the end of the transitional period extends through the Late Iron Age and into the historic period.

Problematically, Ashley's re-study was based on a dated type-variety approach which favours the presence or absence of key characteristics as the typological determinant of the ceramics. These definitions may be highly subjective, as perceived chronological distinction between the transitional and EIA examples lay in whether the associated ceramics can be considered 'well-made' with 'neat' decorations, or 'poorly-made', based upon use of the same decorative tools. Furthermore, these typologies largely assume homogeneity in ceramics throughout the EIA, and again within the LIA and the historic period (the latter characterised by the ubiquitous presence of roulette decorated ceramics). Such a typology assumes no change or insignificant change during these periods, and only considers large scale ceramic distinctions between time periods to be of importance. Even with recognition of diverse regional ceramic expression during the transitional period, rather than consider the ceramics independently they were classed as 'variants' of the 'Transitional Urewe' ceramic types, again implying a cultural homogeneity across the region. This problematic aspect of the past ceramic typology has been highlighted by Robertshaw, stating that this older research inadvertently "*provides support for the pots and identity equation that underlies most models of Early Iron Age expansion*" (Robertshaw 2012:103). In other words, the ceramic interpretation in the Great Lakes region has continued to propagate an outdated culture-historical and normative notion that material culture is reflective of impermeable culture blocks.

Another fundamental flaw in these regional ceramic typologies was the reliance on change in decorative techniques as a key chronological indicator. Vessel form is also implied as a diagnostic, such as that all bevelled rims and dimple bases are considered distinctive of Urewe ceramics. Although certain EIA sites have provided examples of complete vessels deposited in pits or rockshelters, the majority of archaeological ceramics are fragmentary and often represented by body sherds from which the only typologically distinguishing feature which could be garnered is decorative technique. Rims, from which vessel forms could be ascertained, are comparatively less frequent than body sherds, and bases are rare. To emphasise this, Table 8.1 indicates the number and percentage of all categories of ceramic sherd acquired during fieldwork conducted on the Sesse Islands during the course of this thesis.

	Body Sherds	Rims	Bases	Total
Number	1976	675	4	2655
Percentage	74.43	25.42	0.15	100.00

Table 8. 1: sherd composition of the survey and excavation assemblage from Bubembe, Bukasa, and Bubeke Islands

A quarter of all sherds are represented by rim and base sherds, and therefore under the old ceramic typologies employed within the Great Lakes region, c. 75% of the ceramics would have to be analysed based on decoration alone in the absence of information on rim and base forms. Furthermore, Table 8.2 indicates the number of decorated and undecorated sherds in the same dataset (including all body, rim, and base sherds). Only 57.93% of all the ceramics are decorated; therefore we can assume on average only half of the body sherds, which form 75% of the assemblage, could be effectively analysed under the old ceramic typologies.

	Decorated	Undecorated	Total
Number	1538	1117	2655
Percentage	57.93	42.07	100.00

Table 8. 2: number and percentage of all decorated and undecorated sherds in the assemblage from Bubembe, Bukasa and Bubeke Islands

This over-reliance on decorative techniques in the Great Lakes is problematic. Aside from the aforementioned subjectivity in designating an incised stylus decoration as ‘neat’ or ‘rough’, there is an assumption of uniformity in tool manufacturing and tools use, and in uniformity of change in tool types over time. A ‘stylus’ is the most basic decorative tool as it requires no specialised knowledge in its manufacture and use; a simple stick could be used as a stylus to create decorations on the side of a pot. Yet the regional typology assumes this decorative technique was used exclusively in the EIA and Transitional period and not beyond. Fibre roulette tools on the other hand require a more specialist knowledge in their manufacture such as braiding, knotting, and twisting techniques (see Soper 1985; Haour et al. 2010; Livingstone Smith et al. 2010) and therefore they may have more limited distributions.

There is also an inherent assumption that entire groups expressed identity through the tools used to apply the decoration (e.g. stylus, comb, TGR, KPR). However ethnographic studies in both central and east Africa suggest the contemporaneous existence of multiple decorative tools within a region, as well as noting that potters can change their decorative techniques on a whim to distinguish themselves from rival potters, or to recreate a style favoured from another region (Dietler and Herbich 1989; Gosselain 1992; 2000; Kohtamaki 2010). Therefore change in decoration can be more fickle and less meaningful than presented in the Great Lakes typologies.

8.2 New Evidence from the Lake Victoria Basin which Argues Against Associating Decorative Change with Chronological Change

It is beyond the scope of this thesis to re-write the sequence of ceramic development in the entire Great Lakes region without more extensive investigation and systematic radiometric dating. However the results presented in the current piece of work may serve as a guide which makes apparent the flaws in the previous ceramic typologies utilised within the region, and provides an example of an approach which can identify ceramic change on both a spatial and temporal basis. In the previous paragraphs I have highlighted the problems in assuming large scale, homogenous changes in ceramic decorative techniques as an indicator of social change, and in this section I will support these ideas with the results of the ceramic analysis conducted in the Sesse Islands.

Previous ceramic typologies suggested that incised and impressed stylus decorations appeared on Early Iron Age ‘Urewe Ceramics’ in a neat and orderly fashion from 500 BC into the first millennium AD. Stylus decorations continued to appear on 'Transitional Ceramics' from the 9th – 13th centuries AD though with a rougher execution, and both TGR roulette and comb decorations were thought to have made an appearance at the end of this transitional period around the 12th centuries AD. The dates for these changes are attributed to radiocarbon dating of the archaeological horizon from which the decorated sherds originate. However with the advent of OSL dating, it is now possible to date the potsherds themselves, regardless of stratigraphic association, which may be the result of post-depositional mixing in the soil (see discussion on dating techniques later in this chapter). Therefore the greatest argument against the previous chronological distinction of decorative techniques would be through direct dating of ceramics previously thought to have been from distinct temporal sequences. Chapter 5 presents the OSL dates of four sherds recovered from excavations at Bukasa 20, and Table 8.3 here indicates the decorative association of the sherds.

Sherd Code	Date Range	Decoration
004/52	AD 1154 - 1294	undecorated
006/101	AD 1204 - 1304	stylus (4a)
008/62	AD 1004 - 1204	stylus (1g)
008/54	AD 1204 - 1344	comb (8b)

Table 8. 3: OSL dates and decorative associations for 4 sherds from the excavation trench at Bukasa 20

The initial half of the sherd codes (004/006/008) relates to the context from which the sherd was discovered. We can see that the sherd from context 004 was undecorated, a sherd from context 006 was decorated with stylus, and both stylus and comb decorations feature in context 008 (the two sherds which proved problematic to date were decorated with KPR roulette and no decoration respectively). From this OSL dating we have an overlap of dates for all four sherds and their associated comb and stylus decorations. The previous Great Lakes typology does suggest that stylus decorated Transitional Ceramics may be contemporaneously dated with comb decorated Entebbe ceramics. However if we look specifically at the decoration of sherd

006/101 (Figure 8.1), we see that the incised, cross-hatched decoration has a ‘neatness’ and ‘refinement’ which may be considered as distinctive of EIA ‘Urewe ceramics’ (c. 500 BC – AD 1000) under old typologies. Several other ‘neatly’ incised sherds with cross-hatch designs were also recovered from trench to suggest sherd 006/101 is not an isolated example (see Figures 8.2 and 8.3; sherd 006/101 was selected by the Oxford OSL dating labs over the other examples as the decorative grooves on the sherd contained more soil residue, which increases the accuracy of the dating method). Stylus decorated sherds with bevelled rims were also recovered from the same layers of the trench, with such bevelling considered indicative of EIA ceramics under the previous typology.

Figure 8. 1: sherd 006/101 OSL dated AD 1204 - 1304, with an incised decoration of style 4a (squared cross-hatch)

Figure 8. 2: example of cross-hatch incised and punctate sherd from excavations at Bukasa 20

Figure 8. 3: Example of cross-hatch sherd with incised horizontal bands from excavation at Bukasa 20

This cross-hatched stylus decoration and the bevelled rims at Bukasa 20 match the 'Urewe' ceramic typology described by Ashley (see Ashley 2010: 143, Figure 2), which is presented as homogenously dated from 500 BC – AD 1000 across the Great Lakes region, and considered temporally distinct from comb scored sherds. However the OSL dates from Bukasa 20 directly question the validity of these assumptions about 'Urewe Ware'; it seems this style of ceramic decoration did not die out before AD 1000, but persisted well into the 13th century on Bukasa Island. The presence of other similarly decorated sherds with bevelled rims within the same contexts of the trench may also suggest other the ceramic traits previously associated exclusively with a single ware type from the EIA had a greater temporal range than once thought, and existed contemporaneously with comb scored decorations previously thought to be chronologically distinct. Coincidentally, the dates from BKS 20 coincide with the supposed time of religious confederation in Buganda, based on the appearance of ritual compounds in records of the Kingdom capitals from 1000 – 1500 AD (Hanson 2009), which may suggest that BKS 20 was occupied during a time of heightened ritual importance within the islands and on the mainland.

Interestingly, a number of sherds bear both KPR roulette and incised decorations (see Figures 8.4 – 8.6). These incised decorations are what would previously have been referred to as 'unrefined' and therefore would be considered as occurring later than the neater cross-hatched decorations; however with the cross-hatch decorated sherd 006/101 dating between AD 1204 – 1304 we can also question the assumption that the 'neat' and 'unrefined' stylus decorated sherds are temporally discrete. In light of this accumulating evidence, it does indeed seem flawed to typologically date archaeological sites in the Great Lakes region based on ceramic decoration or vessel form alone.

Figure 8. 4: A sherd encountered during survey on Bubembe Island; the front is decorated with stylus, yet the interior features a patch of KPR decoration

Figure 8. 5: Sherd encountered during survey on Bukasa Island featuring both KPR and incised decorative techniques

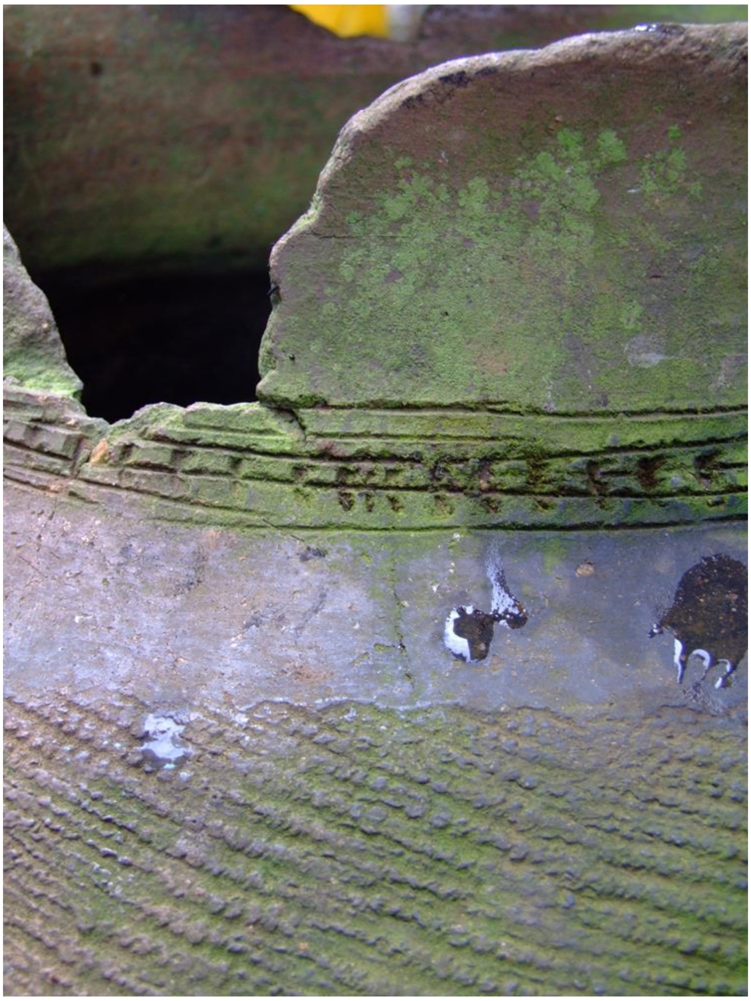


Figure 8. 6: An historic ceramic vessel recycled as a water container on Bubeke Island. The vessel features KPR roulette, horizontal incised lines, and fingernail impressions

8.3 Diversity in decorative techniques masked by previous typologies

Problems with the presumption of decorative uniformity, especially when reliant upon a very small tool set, have been discussed above. Yet a number of alternative decorative techniques present on the ceramics have been ignored under these old typologies, which includes the use of cord-wrapped paddles, metal bracelets, and grass. Numerous different roulettes have also been subsumed into a 'dustbin' category (Soper 1985), although distinctions can easily be made between KPR, TGR, CWR, and clay cylinder roulette. In this section we will consider these 'marginal' decors.

8.3.1 Cord Wrapped Paddle Decorations

168 cord-wrapped paddle decorated sherds were recovered during survey and excavation on the Sesse Islands, and a further 169 were recorded in the comparative ceramic collections derived from previous research (see Figure 8.7 for example). However CWP has been virtually ignored in previous discussions of Great Lakes ceramics. The only mentions of CWP are from records at Namusenyu on the northern lakeshore, where they are referred to as 'stone impressed' (Ashley 2005; 2010) after ethnographic research elsewhere on the lakeshore recorded a potter decorating his ceramics by impressing them all over with a small stone to create a shallow dimpled pattern covering the entirety of the pot (Reid 2003b). Associated oral traditions claim the technique is copied from ceramics produced by the Bavuma, who previously inhabited the Buvuma Islands in the north of Lake Victoria until forcible abandonment of the islands at the start of the twentieth century due to a sleeping sickness epidemic (Reid 2003b; Soff 1969).

Ceramics were recovered from the Sesse Islands matching this 'stone impressed' decoration, with especially high concentrations on Bubeke Island. However, upon microscopic inspection of these ceramics (at 25x magnification) I have identified fibre impressions within the shallow dimpled decoration, which has been corroborated by two other archaeologists familiar with cord-marked African ceramics (K. Manning and K. MacDonald pers. comm.). The shallow nature of the fibre impressions and the regular and covering pattern suggests the ceramics were systematically impressed with a thin, rectangular cord-wrapped paddle at the leather-hard stage of drying. This same technique has been recorded in numerous studies on ceramics from eastern Asia at times when cord-based decorative techniques were prevalent (Karakwala et al. 2004; Aikens 1995; Kenrick 1995; Chui-Mei 1984; Singh 1998-1999; Kuzmin and Orlova 2000; Chang 1970; Gorman 1970; Pal 1986). Thus this type of décor is hardly unprecedented, though in the examples from Asia the CWP decorations are applied to the vessels at an earlier stage of the drying process, leaving a more recognisable indentation. Perhaps older ceramics decorated by CWP were discovered by modern populations on the lakeshore, and attempts were made by contemporary potters to interpret the tools used and copy the technique with the method of impressing stones onto the ceramics as recorded in the ethnography. Therefore two different decorative techniques may potentially exist in the Lake Victoria Basin to produce similar designs. The CWP decorated sherds specifically from Bubeke Island are internally decorated with grass striations, and the significance of this is discussed in the following section.

Figure 8. 7: example of a cord wrapped paddle (CWP) decorated sherd from the Sesse Islands

8.3.2 Grass Decorations

The use of grass as a tool in ceramic manufacture is not mentioned in previous discussions of Great Lakes pottery. The main technique of application involves dragging and impressing a bundle of grass stalks across the wet clay, as detailed in Figure 8.8. This is commonly applied to the interior of the vessel for reasons unknown; perhaps the potter is intentionally creating a roughened interior for purposes relating to the use of the ceramic. This technique is most often found on the interior of sherds decorated with cord-wrapped paddle, and rarely encountered alone; within the Sesse Islands 95% of all grass markings are located on the interior of CWP sherds, whereas only 76% of all CWP decorated sherds feature grass impressions. Therefore in some instances (76% of the time) the potter may be holding a bundle of grass inside the pot to provide structural support while beating the outside with the paddle, and in the remainder of cases the potter uses his hand or some other object which does not leave such a distinctive mark.

Figure 8. 8: Dragged grass impressions on the interior of a CWP decorated sherd from the Sesse Islands

Perhaps the grass impression are not discussed in previous research as they rarely appear outside the Sesse Islands; while the technique features on the interior of 122 sherds within the islands (95% of which are externally decorated with CWP), it is only found on the interior of 16 CWP decorated sherds recovered from Namusenyu on the northern lakeshore amongst all comparative assemblages analysed in this study. In light of the above discussion on CWP decorations where it is hypothesised that both CWP and stone impression techniques may be employed within the Great Lakes region to a similar effect, perhaps the grass striations relate to sherds decorated with a paddle, and vessels with a similar design but no grass striations are decorated via stone impression. Only 7% of CWP decorations feature grass impressions on the northern lakeshore, compared to 76% in the Sesse Islands. This prevalence of the

'CWP' or 'stone impressed' decorations without grass striations on the northern lakeshore, whilst the same decoration is almost always found in association with the grass markings on the Sesse Islands, may imply that CWP is used in the Sesses, and the ethnographically recorded stone impressed designs were created on the mainland.

The ability to deduce such micro-variations in the application of decorative techniques is one of the merits of the attribute-based method of ceramic analysis; whereas under previous typologies both decorative techniques would have been taken as identical due to what appears to be use of the same tool in both situations and assumptions made of ceramic homogeneity between the two locations, the attribute-based method highlights that the presence of sherds featuring both grass and CWP decorations within the Sesse Islands and specifically on Bubeke does not occur by chance but represents a micro-regional variation in decorative style, whereas the absence of grass markings on the CWP sherds is unique to the northern lakeshore. Therefore the two ceramics may be similar, but are being produced by two distinct ceramic manufacturing traditions.

8.3.3 Metal Bracelet Decorations

Metal bracelets have not been recorded as a ceramic decorative tool in the Great Lakes region before. It is likely the decoration produced from this technique (see Figure 8.9) has been subsumed under the broad category 'roulette decorated'. However the use of metal bracelets to produce identical decorations has been recorded in ethnographic studies in Central Africa by both Alexander Livingstone Smith and Olivier Gosselain (pers. Comm., see Figure 8.10), and it is likely similar techniques were being employed in the Lake Victoria Basin. The occurrence of this decorative style is rare, with only eight examples recorded in the Sesse Islands and 19 from comparative sites on the northern lakeshore. Therefore until more occurrences of this decorative technique are recovered from the archaeology of the Interlacustrine region little interpretation can be offered.

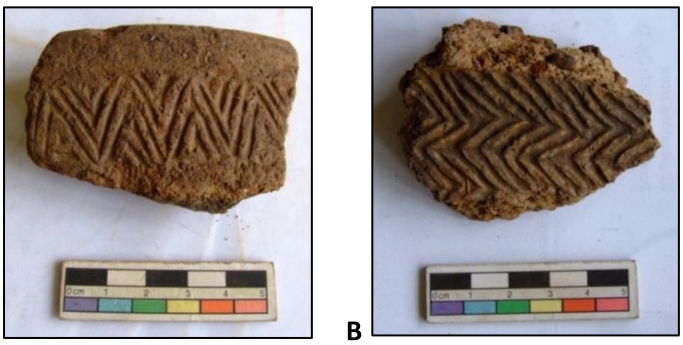
Figure 8. 9: example of ceramic decoration created with a metal bracelet

Figure 8. 10: Metal bracelet 'roulette' by a Gbaya potter in Cameroon (O. Gosselain, pers. comm.)

8.3.4 Distinctions Between Different Types of Roulette

Typically all roulette decoration in the previous ceramic typologies have been subsumed into a single category used to define LIA ceramics. Some attempts were made to distinguish between TGR and KPR, and CWR is recognised as a different type of roulette, though it is little discussed. Clay cylinder roulettes are not mentioned, though they occur in the Sesse Islands and on the surrounding lakeshore.

Connah offers the only attempt to categorise carved wooden roulettes in Uganda through his research at Kibiro, where 99 different CWR designs were recorded with a hypothesised appearance in the early second millennium AD, based on stratigraphic association (Connah 1996b). Within the Sesse Islands I recorded 114 CWR decorated sherds and amongst the comparative sites 61 CWR sherds, featuring 20 different CWR designs. 6 of these match patterns detailed in Connah's illustrations (photographs of some of the more common CWR designs from the Sesse Islands are presented in Figures 8.11 and 8.12). Statistically CWR decorated sherds were associated more strongly with surface collections in the island assemblages rather than excavated or mainland assemblages, indicating both regional and temporal patterning in the presence of CWR decorations within the Lake Victoria Basin. Interestingly the site of Kibiro is directly associated with a lake (Lake Albert) and salt production (Connah 1996b). Kenny (1979) and Speke (1863) both record a lucrative trade in salt across Lake Victoria and into the Buganda Kingdom, and although Kibiro is located well within the adjacent Bunyoro Kingdom, the site may potentially have played a part in a wider network of salt trade within the Interlacustrine region. Under this notion, there may be some hypothesised association between CWR ceramics and the salt trade.



A B

Figure 8. 11: Two typical CWR decorations from the Sesse Islands (A – B)

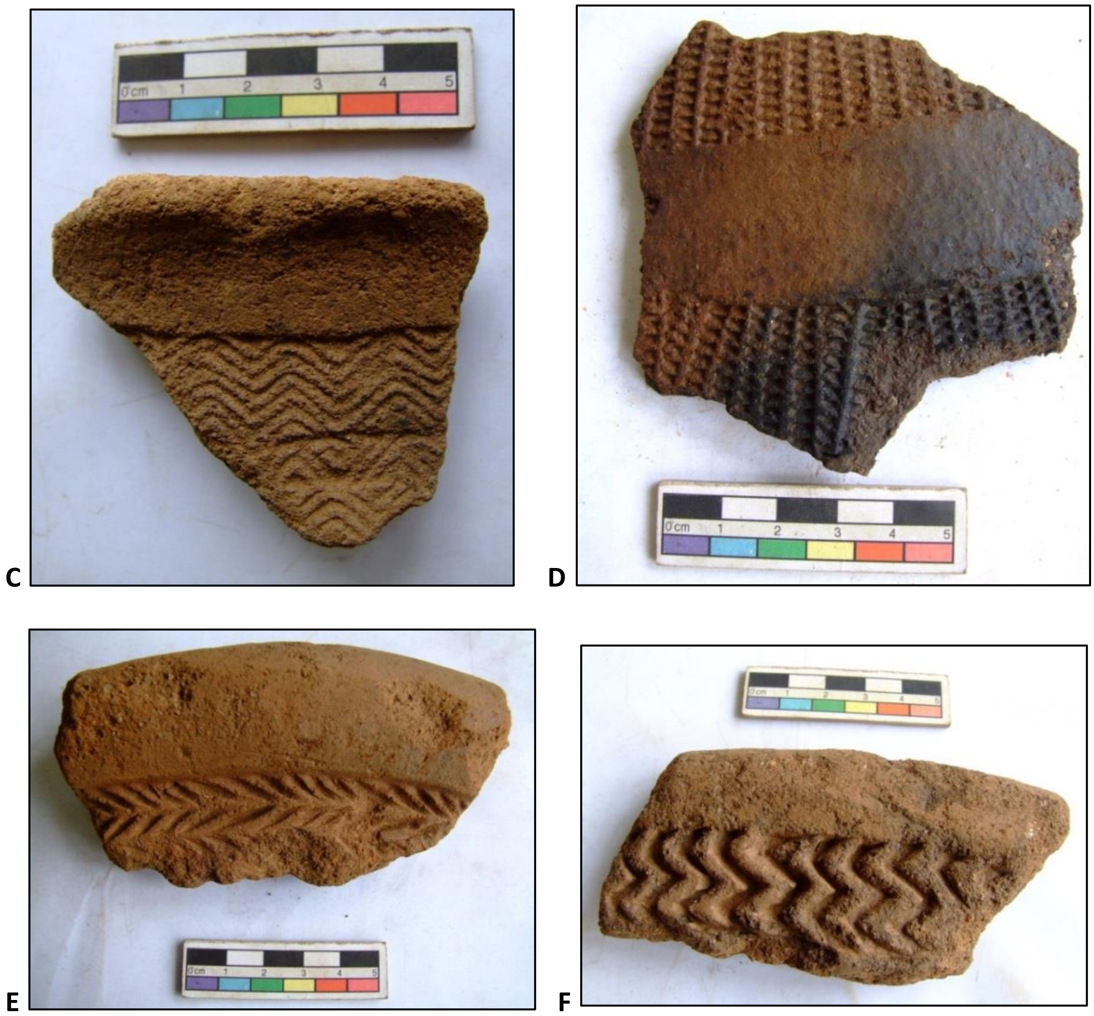


Figure 8. 12: Four typical CWR decorations from the Sesse Islands (C – F)

During my research I also encountered clay cylinder roulettes within the Sesse Island and comparative lakeshore assemblages. These initially may be mistaken for carved wooden roulettes, though the depth of the grooves between the closely positioned and well-rounded raised bumps of the pattern would be difficult to create from a carved roulette (see Figure 8.13), whereas such shapes are achievable with roulettes shaped and fired from clay, a technique used elsewhere in Africa (Soper 1985). Clay cylinder roulettes were rare however, with only 20 examples from the Sesse Islands and 10 examples from the comparative ceramic assemblages, and therefore little information could be drawn from the distribution of these ceramics.

Figure 8. 13: Example of a sherd decorated with a rouletted clay cylinder

8.4 New Data from the Lake Victoria Basin Viewed from the perspective of Coastal and Island Archaeology

In chapter 1 I discussed a research theme known as 'Coastal and Island Archaeology'. This sub-discipline is specifically interested in the nature of human interactions over naturally imposed aquatic boundaries, primarily in examining varying degrees of isolation and interaction between the island and mainland coastal populations (Fitzpatrick and Anderson 2008). An examination of ceramic patterning in the Sesse Islands and on the coast of Lake Victoria allows us to consider whether interaction was taking place between the island and mainland populations through shared ceramic attribute patterning, and whether there is any evidence for isolation of the island communities evident in their material culture. From the interpretation presented in this section, there appears to be supporting evidence for the presence of two different trade routes operating between the islands and the lakeshore, which can be dated to two different periods of history.

The western side of the Sesse archipelago is the closest to the lakeshore and therefore most accessible from the mainland. Theoretically we would expect the majority of trade with mainland populations at the more accessible side of the archipelago, and reduced evidence for trade further east into the lake as the islands become increasingly isolated and more difficult to reach in terms of time and energy. In a study of the newly recorded ceramics from Bubembe, Bukasa, and Bubeke (listed in order of increasing distance from the lakeshore), there is indeed a statistical association between TGR decorations and the westernmost island (see Chapter 6 Part 1 Figure 6.13), suggesting perhaps that TGR decorations are more prevalent amongst mainland lakeshore populations and arriving in the islands by trade of goods or knowledge of TGR tool manufacture. A subsequent attribute analysis of comparative ceramic collections from a number of mainland sites and from Bugala Island located to the west of Bubembe proves an increased association between TGR and the most westerly island in the archipelago (see Chapter 7 Table 7.18), and an association of both TGR and comb decorations in the lakeshore assemblages (see Chapter 7 Table 7.17 and Figure 7.21). Within the fieldwork analysis alone comb did not indicate any geographic patterning, though when the three fieldwork islands are compared to the most westerly Bugala Island, comb does exhibit a significant association with the ceramic assemblages closer to the mainland coast (see Chapter 7 Table 7.19 and Figure 7.21)

This geographic association between both comb and TGR decorations is especially interesting in light of the older ceramic typologies. In previous research, herringbone patterned TGR decorations and scored comb decorations are two of the defining features of the ceramic referred to as ‘Entebbe Ware’. Other characteristics include large bowl forms with thickened rims. These vessels have previously been identified as an exclusively lacustrine phenomenon, based on their sole occurrence within c. 8km of the lakeshore (Ashley 2005; 2010). However evidence from the present study suggests the distribution of the attributes associated with ‘Entebbe Ware’ is more complex than simply a ‘lacustrine phenomenon’, and the attempt to create such specifically defined ware types is problematic. Closed bowls with bulbously thickened rims do feature throughout the Sesse Islands, though manifest with a wide variation in rim design. However TGR decorations and comb decorations, which are a classically defining feature of ‘Entebbe Ware’, are not universally associated with island sites but instead disappear to the east of the archipelago. Several attributes found on the Entebbe ceramics may co-occur on the same sherds within c.8km of the mainland lakeshore, but they do not occur within the lake itself. If we explore the appearance of comb and TGR in individual island sites, comb decorations are almost exclusive to Malanga Lweru on Bugala Island, and to Bukasa 20 amongst the three fieldwork islands further east (see Chapter 7 Figure 7.21).

Further ceramic evidence indicates shared attribute patterning between Malanga Lweru and the mainland assemblages. ThGr2 closed and internally thickened rims are almost exclusive to Hippo Bay Cave on the mainland, and Hippo Bay Cave is also famed as the type-site of ‘Entebbe Ware’ (Brachi 1960), thus being associated with the TGR and comb decorative techniques. Within the Sese Islands the ThGr2 rim form has a geographic preference for the most westerly Bugala Island, and almost exclusively with Malanga Lweru on this island (see Chapter 7 Figure 7.26). A picture is emerging of Malanga Lweru as a trade hub within the islands, trading directly with mainland populations on the surrounding lakeshore, with shared social and learning networks potentially influencing ceramic manufacture. The role of Malanga Lweru as a trade locale is supported by the presence of foreign snapped cane glass beads in the assemblage, which arrived in the lake basin as a result of trade with the Kenyan coast (Ashley 2005). Perhaps related to Malanga Lweru’s position as a trade hub, ThGr6 rims, characterised by a closed and bulbously thickened profile, are conversely a unique island rim form with only a single example recovered from any mainland contexts. The almost exclusive presence of this rim form to the Malanga Lweru assemblage within the islands may suggest the emergence of a distinct local ceramic tradition as a means of corporate identity in a locale of heightened social and trade interaction.

Further east in the archipelago where the attributes associated with mainland assemblages dwindle, the appearances of comb and ThGr2 rims are almost exclusive to Bukasa 20 (see Chapter 7 Figure 7.26), suggesting the site was engaging directly with Malanga Lweru to acquire these goods or knowledge of new ceramic manufacturing techniques, with Malanga Lweru acting as an intermediary with the mainland societies (see Figure 8.15 later in this section). This is further supported by the uneven representation of simple closed SGr1 rimmed bowls within the islands, with a marked presence at the Bugala Island sites yet only at Bukasa 20 throughout the remaining archipelago (see Chapter 7 Figure 7.29). It is likely that Bukasa 20 interacted with Malanga Lweru rather than directly with the mainland lakeshore; the attributes associated significantly with the mainland assemblages occur in lower quantities at Malanga Lweru, and these attributes again occur at Bukasa 20 in lower quantities than at Malanga Lweru. It appears as distance from the primary trade hub increases, the quantity of ceramics with similar attributes decreases, though the same variability is present.

The emergence of a unique set of ceramic attributes associated with Bukasa 20 may again be reflective of the development of a distinct local ceramic style intended to express identity in an area attracting foreign ceramics or manufacturing techniques. On a regional basis including all mainland ceramics, fine-grained ceramics tempered with grog remain significantly associated with Bukasa 20 at the centre of Bukasa Island, and with Bubeke 1 (excavated layers only), with occurrences rare elsewhere in the Lake Victoria Basin. This may reflect a localised and well-maintained tradition of ceramic manufacture within the islands. Not only does the presence of unique ceramic attributes at Malanga Lweru (rim form ThGr6) and Bukasa 20 (fine grained, grog tempered fabrics) express cultural distinction between the coastal and island populations whilst shared attributes indicate that active interaction was taking place, but this also provides evidence of intra-island variation, suggesting the presence of separate socio-economic entities (see Figure 8.14 for a summary of the major ceramic trends in the Sesse Islands discussed, and Figure 8.15 for a mapping of the hypothesised trade routes).

The second trade route in the islands appears to link the most isolated island of the archipelago, Bubeke, directly with the northern lakeshore (see Figure 8.15). There is a strong association of open-collared bowls, CWP and grass decorations with the assemblage from Bubeke 7, and the appearance of these attributes elsewhere within the Sesse Islands is rare (small amounts of these attributes feature at BKS 2 and BKS 33). Amongst the mainland assemblages, Namusenyu on the northern lakeshore also has a significant association with open-collared bowls and CWP decorations; the only other mainland assemblages to feature these attributes are Luka and Buloba Hill (both geographically proximal to Namusenyu), though in very low amounts. The complete absence of both this vessel form and CWP decorations from any sub-surface assemblages has led to the conclusion that both attributes are comparatively young.

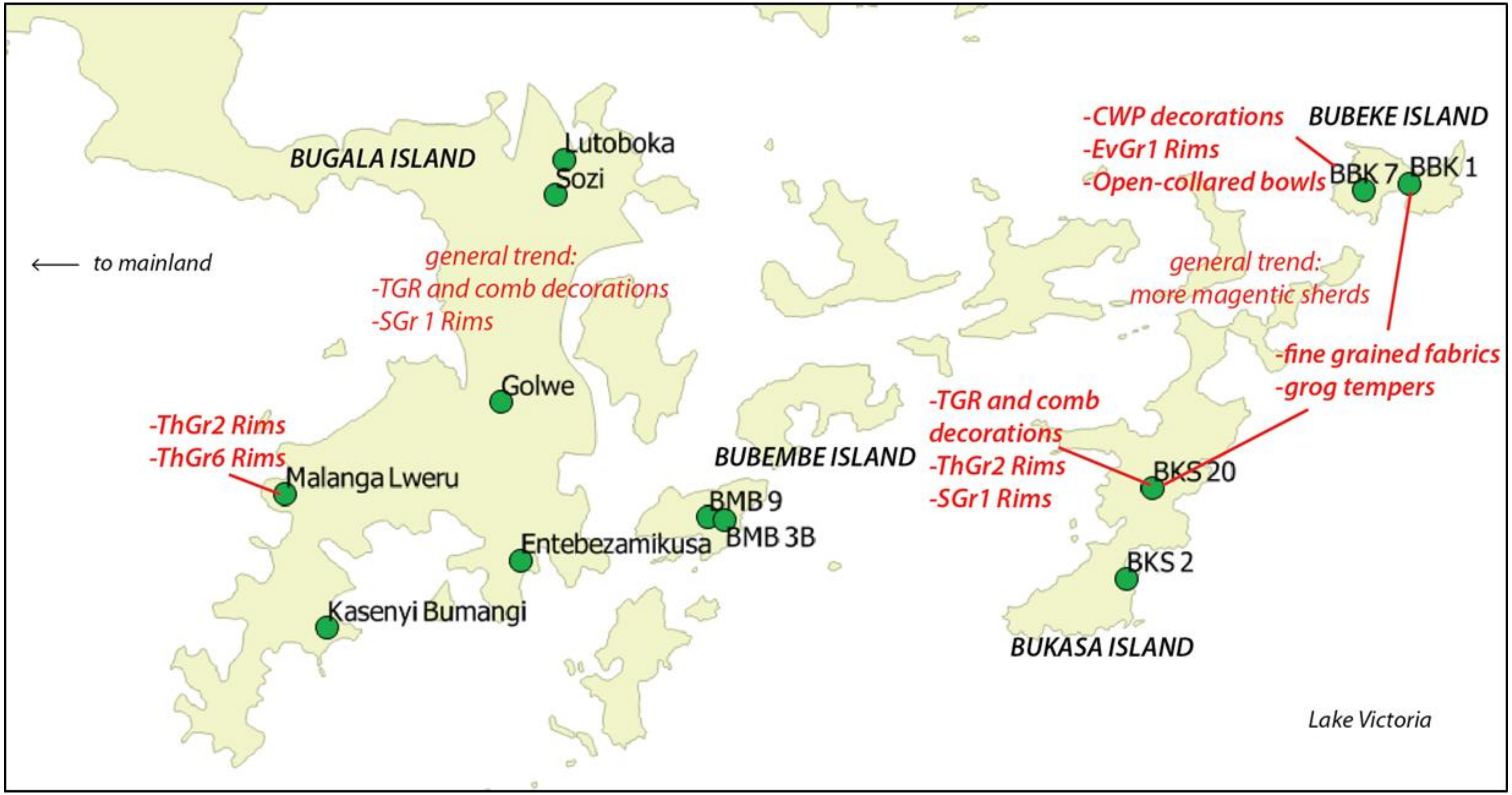


Figure 8. 14: Summary map of the strongest ceramic trends encountered in the Sesse Islands, indicating location of all excavated and comparative island sites

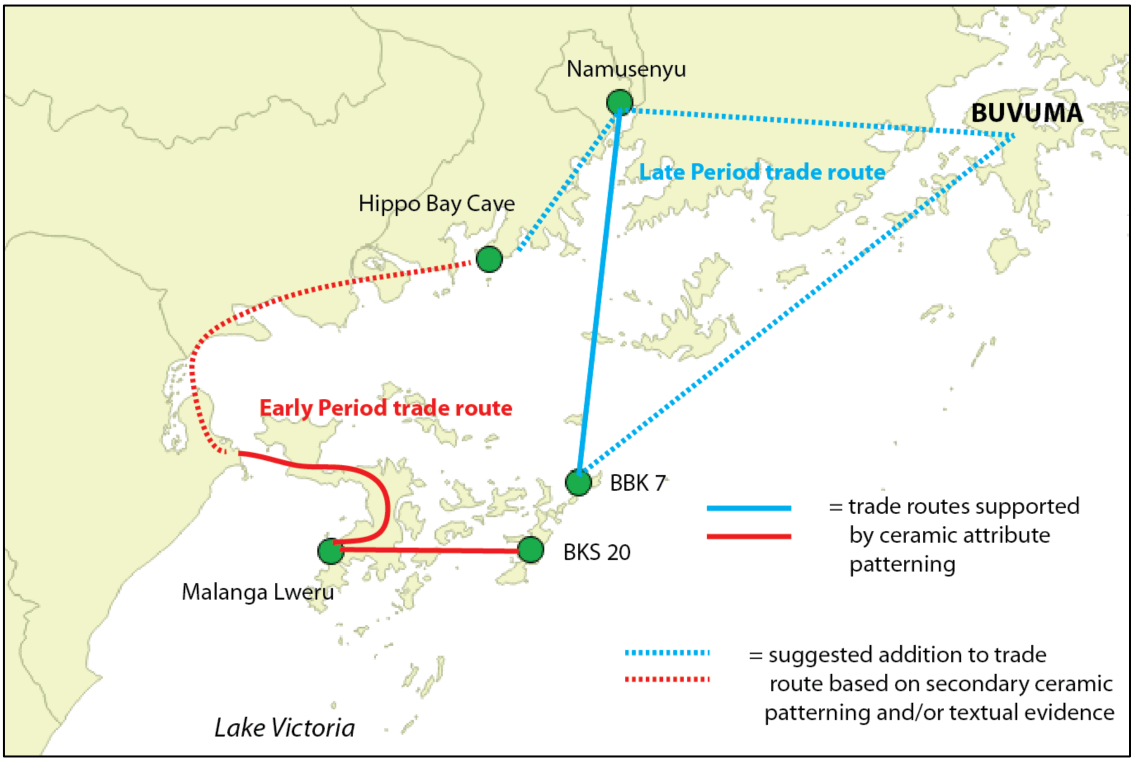


Figure 8. 15: Hypothesised routes of interaction between the islands and mainland based on major ceramic patterning, with additional extensions based upon lesser ceramic patterning and textual references to ceramics from Buvuma. Note that 'Early Period' and 'Late Period' are arbitrary delineations based upon fieldwork results and do not correlate with older designations (e.g. EIA/Transitional/LIA)

Therefore, it is likely that a route of interaction and trade existed directly between Bubeke Island and the northern lakeshore, though at a later date than the island-hopping route between Bukasa 20, Malanga Lweru, and the mainland. From the 1840s long distance canoes were constructed by Buganda, and Kabaka Suna is noted as sending canoes from the northern lakeshore to the far south of the lake to trade at Umara and Ukerewe (Reid 1998). Other early ethnographic records from the nineteenth and early twentieth century mention that the Kabaka of Buganda often took boat trips directly from his palace on the northern lakeshore directly to the islands either for refuge at times of warfare, or to pay homage to traditional religious shrines (Gutkind 1963; Roscoe 1911; Ray 1991; Kagwa 1934), and both Speke (1868) and Kenny (1972; 1977; 1979) record an active lacustrine trade centred on the northern lakeshore in the nineteenth century.

Further evidence from Nenquin's report (1971) on the archaeology of the Buvuma Islands suggests Buvuma, located close to the northern coast between

Namusenyu and Bubeke, may have been involved in this route. Although the ceramics were unavailable for re-analysis, oral traditions record the use of CWP (or similar stone impressed decorations) on Buvuma (Reid 2003b), and Nenquin's illustrations (Figure 8.16) of the ceramics from Buvuma appear to match the CWP decorations from Bubeke. Another decorative technique recorded by Nenquin is a lattice pattern probably made with a carved wooden roulette (Figure 8.17); this decorative technique is also present on the ceramics from Bubeke Island (see Figure 8.12 image D earlier in this chapter), but rare elsewhere in the Lake Victoria Basin. This further implies direct interaction between the two islands. A similar, though not identical, CWR lattice pattern was also recorded on sherds from Namusenyu and Hippo Bay Cave. The similarity in the CWR design at Namusenyu and Hippo Bay Cave but slightly different execution when compared to the Buvuma and Bubeke ceramics implies a copying of the CWR design technique through observations of the finished decorative pattern, rather than a use of identical tools at all locations (see Figure 8.18).

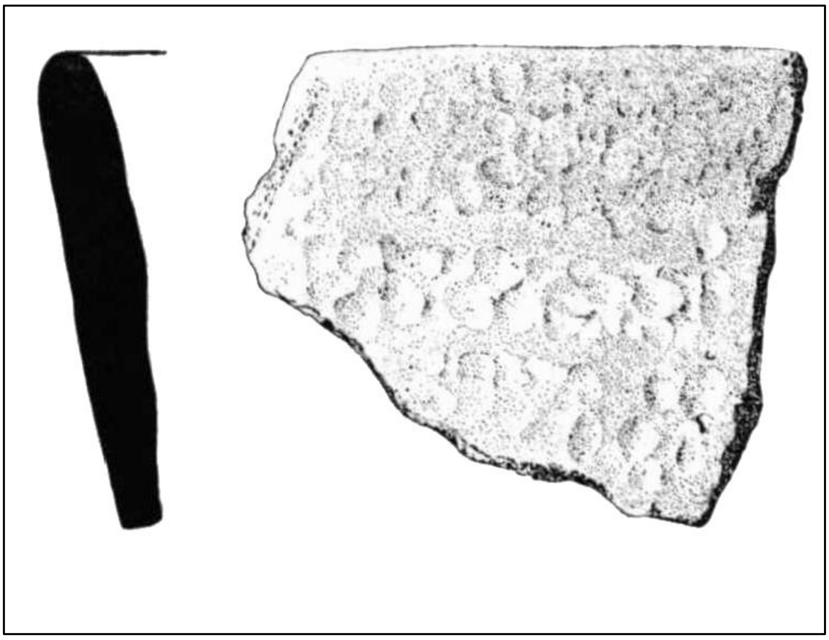


Figure 8. 16: Illustration of CWP decorated sherd from Buvuma Island (Nenquin 1971:384)

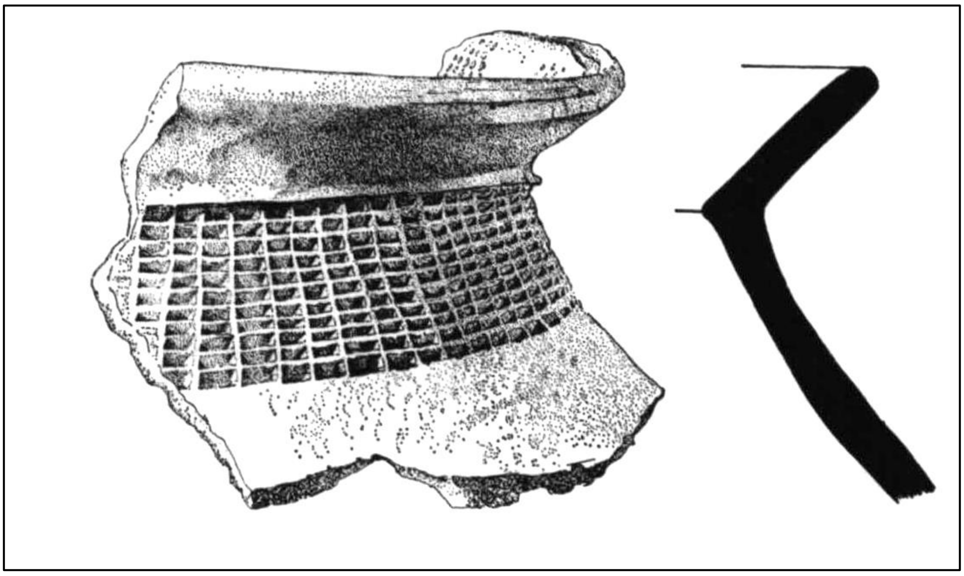


Figure 8. 17: Illustration of sherd from Buvuma decorated with a lattice-patterned CWR (Nenquin 1971: 385)

Figure 8. 18: example of the lattice CWR decoration found at Hippo Bay Cave and Namusenyu (photographed example is from Hippo Bay Cave)

Magnetism appears to have a stronger correlation with the island assemblages rather than the mainland assemblages, with 14% of all survey sherds recorded as magnetic in the islands, compared to 8% of all sherds from the mainland assemblages. On a regional basis, outside the islands the only sites with a uniquely high percentage of magnetic sherds are Nsongezi, Kansyore, and Luka. Nsongezi and Kansyore are located adjacently by the Kagera River, far from any other comparative sites (see map in Chapter 7 Figure 7.1). These patterns match maps detailing areas of high and low magnetic signature around the Lake Victoria Basin (see Chapter 6 Figure 6.11), suggesting it may be possible to ascertain which ceramics were constructed from areas with a naturally high magnetic signature, and which sites utilised raw materials from areas of low magnetic signature. Both Kagera River assemblages exhibit an exclusive presence of medium grained clays which may suggest an isolated ceramic tradition with the local riverine clay identified as medium grained within an area of high magnetic signature, which has not been diluted by un-magnetic trade wares. Luka does not exhibit such geographic isolation from other sites, though the site lies within the area of high magnetic signature, which may also account for the high proportion of magnetic sherds in its assemblage, again without dilution from non-magnetic trade wares due to cultural isolation.

So far we have not considered the position of the Sesse Islands as an historic cult centre in explanations of the ceramic attribute patterning. To this end, it is interesting to observe that ceramic diversity in the Sesse Islands is much greater than observed in mainland assemblages. This is surprising when we consider both the smaller assemblage sizes within the islands, the restricted sandstone geology of the islands, and basic theories from Coastal and Island Archaeology which suggest island assemblages to be reduced in both size and variability due to their more isolated location and smaller resource base (Fitzpatrick and Anderson 2008). Table 8.4 lists both the fieldwork and comparative sites with their sherd counts and location. The average assemblage size from the excavations on Bugala Island is 291, which indicates that the fieldwork assemblages from Bubembe, Bukasa and Bubeke all lie within the standard size range for the Sesse Islands. With the fieldwork data included, the average island assemblage size is 276 sherds. In comparison the mainland assemblages are much larger, with an average of 734 sherds, which may be reflective of access to a greater range of resources on the mainland allowing for greater population growth. Running a Chi Squared test on the numbers for average assemblage size implies that island assemblages are distinctively smaller than mainland assemblages.

Site	Island/Mainland	Total Sherds
Lutoboka	Island	119
Malanga Lweru	Island	685
Entebezamikusa	Island	271
Kasenyi Bumangi	Island	89
Golwe	Island	293
BBK 1	Island	153
BBK 7	Island	118
BKS 2	Island	423
BKS 20	Island	408
BMB 3B	Island	313
BMB 9	Island	159
Sanzi	Mainland	1972
Kansyore Island	Mainland	273
Hippo Bay Cave	Mainland	890
Nsongezi	Mainland	239
Luka	Mainland	186
Namusenya	Mainland	442
Buloba Hill	Mainland	1138

Table 8. 4: Ceramic assemblage sizes for the island and mainland sites

Comparison of Average Mainland and Island Ceramic Assembalge Sizes			
	O	**E**	**Total**
Island	276	374.6554889	**3031**
Mainland	734	635.3445111	**5140**
Total	**1010**	**1010**	**8171**
Probability	**1.30744E-10**		
Is the pattern significant?	**yes**		

Table 8. 5: Observed (O) and expected (E) values for the average assemblage size of both island and mainland sites, with the results of a Chi Squared test indicating that island assemblages are generally smaller than mainland assemblages (critical Chi-value = 3.84; actual Chi-value = 41.3)

One explanation is that the lower sherd counts on the islands may simply be a factor of trench size when compared to the mainland excavations, rather than directly linked to a lower material culture density on the islands themselves (see Table 8.5). Another explanation may lie in agricultural techniques. Intensive banana cultivation emerged in Buganda around 900 – 1100 AD, though permanent settlements and widespread practices of this intensive agriculture did not occur until the 14^{th} – 16^{th} centuries (Schoenbrun 1998; Reid 2001; Hanson 2003; 2009). Before this mid-second millennium AD date, farmers relying on grain and tuber agriculture were forced to break new fields every few years and move homes every decade. Although intensive banana cultivation allowed for permanent settlements, with fields remaining productive for several decades and even generations, not all land was suited to such intensive growth of bananas, leading populations to either relocate to the more productive lands, or continue with a pattern of shifting agriculture (Hanson 2003). The smaller assemblage sizes on the Sesse Islands may be reflective of the less intensive agriculture, requiring populations to move their homesteads, thus preventing large scale accumulations of archaeological materials. Areas with greater ceramic accumulations may have simply been more suited to permanent agriculture.

Ceramic fabrics and inclusions diversity is also much greater in the island assemblages. This is curious as the restricted geology found throughout the islands would suggest limited access to a wide variety of inclusions. Thus, one is inclined to consider the role that trade or tribute might have played in creating this diversity. Historic records from numerous kingdoms record visits being made to the Sesse Islands to partake in cult activities at key locations within the archipelago. These cult activities tend to involve the deposition of materials at cult shrines as a tribute to the spirits venerated at the shrine (see Chapter 1 for detailed description of cult activities and kingdom histories related to the islands). These visits from dispersed groups throughout the Great Lakes region could account for ceramic diversity within the island assemblages through the deposition of imported goods, as well as perhaps influencing change within the island manufacturing traditions through a sharing of ideas. The increase in ceramic diversity in younger deposits may reflect a heightened period of cult activity in the regional histories, which could correlate with increased access to maritime technology, or an increased focus on traditional ideologies as form of resistance and identity as centralised kingdom political structures developed (see Berger 1973; 1995; Bjerke 1981; Sutton 1993; Schmidt 1978; Gilsenan 1972; Packard 1982 for a discussion of the implication of spirit cults in south-western Uganda and Rwanda existing as a form of political resistance).

Bukasa Island is listed in ethno-histories as containing the greatest number of pre-colonial shrines of all the islands in the archipelago (see Chapter 1). This attraction for visitors could have played an influencing factor in the development and maintenance of Bukasa 20 as a trade hub deep within the island chain. Therefore the influence of trade and cult practices within the island may interplay in the development of the Sesse Island ceramic assemblages. Whilst early Coastal and Island archaeologists considered island cultures to develop in isolation due to their naturally imposed aquatic boundaries, later theorists recognised that the levels of isolation and interaction vary over time and space, making it appropriate to consider each island scenario independently to assess how interactions with mainland populations influenced the island cultures over time and whether isolation did occur, if at all. The results presented here from the Sesse Islands suggest that we can begin to read interactions between mainland coastal and island populations from the ceramic material culture. Similarities in ceramics indicate interactions between BKS 20, Malanga Lweru, and the coast, suggesting aquatic travel during this early period focussed on shorter distances and routes which may have involved island hopping. At this time islands more distant from the coast such as Bubeke would have been relatively isolated from the mainland populations, reflected in the lack of mainland ceramics at the Early Period site BBK 1. However Bubeke was not isolated from the nearby islands in the archipelago, with evidence of interaction between BBK 1 and BKS 20 on Bukasa Island through the shared ceramic traits of fine grained fabrics and grog tempers. A later trade route between BBK 7 and Namusenyu implies that development in maritime technology allowed for travel across greater expanses of water, thus reducing the isolation of the islands located further from the mainland and allowing interaction to occur directly with mainland populations. Reasons for the maintained contact between the islands and mainland populations may lie in the spiritual role the Sesses played in the local cosmologies, and future work throughout the islands and on the coast may further elucidate spheres of interaction across the aquatic boundaries within the lake.

8.5 Argument for the use of the Attribute-Based method of Ceramic Analysis over the older Great Lakes ceramic typologies

The best argument I can give to support the attribute-based method of ceramic analysis in the Great Lakes region is to summarise the wealth of knowledge which has been gained on patterning in the ceramic archaeology of the Sesse Islands and the surrounding Lake Victoria Basin during the course of this study. The amount of new information acquired on the regional ceramic history demonstrates the merit of this ceramic analysis technique, and this new data can be readily interpreted in the context of broader themes such as the interaction between coastal and island populations, and the importance of the Sesse Islands as a place of cult activity (discussed in section 8.4 above). Already broached in the beginning of this chapter, under old typologies in the Great Lakes region ceramics were only considered of use if they could be pigeon-holed into predefined typological categories for analysis, which left no room for identifying and recognising localised innovation and variation in the production of ceramics. However the information presented here will highlight the flexible nature of the attribute-based method of analysis which does not rely on pre-defined types and instead recognises regional variability across the lakeshore and islands, and temporal variability within the islands.

Based on the results of the attribute analysis conducted on the fieldwork ceramics in Chapter 6, it was possible to propose a tentative seriation based upon the stratigraphic information associated with the attribute patterning (see Chapter 6 Table 6.12 and 6.13). Importantly, although some ceramic attributes are more prevalent in younger dated assemblages and some associated with older dated collections, the attributes which occur more frequently in the older collections may not be completely absent from younger assemblages and vice versa, they are simply less common. This is key when attempting to interpret ceramic remains; a change in ceramic manufacturing techniques does not necessarily mean eradication of older techniques and therefore sites cannot be ascribed an age simply based on the presence/absence of certain attributes, but rather on varying proportions of the different attributes over time. The only exception is when there is a proven absence of certain attributes from stratigraphically younger or older collections, such as the exclusive presence of CWP, grass decorations and open collared bowls in the surface assemblages of the Sesse Island sites, with no examples recovered from excavation. This is where the previous ceramic typology falls flat; there is an inherent assumption that single sherds or attributes may be used as a chronological indicator, yet in reality (as evidenced in the seriation table in Chapter 6) entire ceramic assemblages and the relative proportions of different attributes must be examined and compared to ceramics from different depths of the same site, or from different locations within the same area.

Within this study, overall older assemblages are more likely to contain un-magnetic fine-grained fabrics with a higher occurrence of grog tempers than younger assemblages. The older collections also feature a greater quantity of jars with either flared and thickened EvGr2 rims, or flared and un-thickened rim forms (most often EvGr3). Bowls in these older assemblages tend to be constructed with simple, un-thickened rims. With time, vessels have increased in both rim diameter and thickness, with a greater prevalence of medium grained, magnetic fabrics containing hematite, mica and rose quartz inclusions. Younger assemblages are also characterised by an increase of open collared bowls with EvGr1 rims, and flared, bulbously thickened EvGr4 rims with greater rim diameters and larger thicknesses. Rouletted and grass decorations feature more often on younger ceramics.

Based on the observations of recurrent ceramic attributes associated with different stratigraphic layers within the excavation trenches, the excavated fieldwork sites were tentatively organised into a hypothesised chronology, presented in Chapter 6 Part 2 (Figure 6.31). This sequence is unconfirmed without being able to date all sites, and there may be temporal overlap in the occupation of some sites. However based on just six test pits the attribute-based method of analysis yields enough information for such chronological suppositions to be made between the sites. Therefore a more extensive examination of Great Lakes ceramics has great potential to yield patterns in localised ceramic chronologies elsewhere within the region.

Having identified potentially older and younger attributes in the archaeology of Bubembe, Bukasa and Bubeke, we may now consider reasons for these changes, and implications of the results.

8.5.1 Interpretation of Ceramic Attribute Patterning: fine grained, grog tempered ceramics

Fine grained clays appear to be distinctive of older assemblages, and 100% of fine grained clays from the Sesse Islands are tempered with grog. The microstructure of clay is composed of elongated platelets, and thus the pure clay is unstable and likely to shear as the elongated platelets lie side by side. The addition of temper to the clay introduces rough sided, more spherical particles which provide grip and support between the platelets, lending structural integrity (Rice 1987a). Whilst coarser clays naturally contain other minerals to serve this purpose, fine grained clays require addition of temper. The addition of crushed rock or sand would be one option, and grog provides another. The association between grog and fine grained clays is clear in the deeper stratigraphic layers of several excavation sites in this study. The coarse and medium grained fabrics recorded elsewhere within the trenches may in fact be the same fine grained clays which have been selectively tempered with crushed rock or sand rather than grog, as spatial patterning in attribute preferences within the islands suggest the use of grog tempers may be associated with a specific geographic locale, rather than just depth.

Site specific associations with fine-grained, grog tempered sherds include their appearance at BKS 13 and BKS 20 located within a 500m radius of one another in the centre of Bukasa Island. To emphasise the extent of this association, whilst only 2.5% of all surface ceramics in this study are fine-grained and grog tempered, 21% of the BKS 13 and 30% of the BKS 20 surface assemblages are fine grained and grog tempered. This may represent a distinct localised patterning in ceramic production techniques in the centre of Bukasa Island, or a greater antiquity of occupation at this locale, based on attribute patterning within the regional stratigraphic data.

Previous ethnographic research by Dietler and Herbich (1998) in East Africa records that potters were initially trained to add grog to clays until the correct 'feel' of a workable clay was achieved. Later on potters began experimenting with other tempers to achieve the same 'feel' of clay, such as burnt earth, charcoal, and fired and crushed clay blanks. Similarly, Kohtamaki's ethnographic study of Twa potters in Rwanda (2010) records that clay sources are chosen and tempered according to the 'feel' of the clay. From the excavation assemblages within the Sesse Islands grog tempers are older, and it could be likely that a similar situation occurred with new inclusions added to the clay with time as grog availability dwindled. This hypothesis of reduction in grog sources is supported by the association of a wider range of inclusions with younger ceramics, and an increase in magnetism which is the result of the addition of iron rich inclusions to the clay; in the absence of grog potters may have become more experimental with their fabrics, introducing these new inclusions. Alternately, the increase in inclusions and thus fabric diversity in younger layers may be a result of increased lacustrine trade and the introduction of foreign ceramics, as discussed in the previous section of this chapter.

8.5.2 Interpretation of Ceramic Attribute Patterning: Decorative Technique

From the excavated assemblages on Bubembe, Bukasa, and Bubeke, all types of roulette (KPR, CWP, TGR, CWR, clay cylinder roulette) are stratigraphically younger, which fits the supposition from previous typologies that roulette decorations appeared later throughout the Great Lakes region than non-roulette decorative techniques. A future OSL dating of sherds exhibiting different types of roulette from different stratigraphic layers and geographic locations within the Lake Victoria Basin would be useful to confirm this chronological association, and to also reveal potential distinctions between the introduction and use of different types of roulette technologies.

Decorations applied with stylus were assumed to have older dates in previous ceramic typologies. However from an attribute analysis on the excavated sites here comb is the only decorative technique which can be exclusively associated with older layers. Indeed, stylus decorative techniques feature in all stratigraphic layers of the excavation trenches as well as throughout surface contexts, thus discrediting the notion that stylus decorations are the oldest in ceramic typologies, followed by comb and then roulette. These old typologies are further disproved by the contemporaneous dating of both a comb decorated sherd and a stylus decorated sherd with a decorative pattern which would have been considered distinctive of an EIA assemblage under previous typologies; this has been discussed earlier in the current chapter.

8.5.3 Interpretation of Ceramic Attribute Patterning: Magnetism

Aside from elucidating temporal patterning at excavation sites, the attribute-based method of analysis also allows for spatial conglomerates to be drawn in the patterning of attributes between the islands. Within the surface assemblages there is a significant increase in the proportion of magnetic sherds in the easterly sites of the archipelago, with high levels at Bubeke 1. This correlates with the natural magnetic signatures found throughout the islands and around the lake basin (see Chapter 6 Figure 6.11). During the course of this research a thin section analysis was conducted on one non-magnetic and nine magnetic sherds manifest in a variety of fabrics to examine the phenomenon of magnetism. The results indicate that the inclusion of iron rich minerals, most commonly hematite, are the source of the magnetism (other iron rich minerals typically present in lateritic geologies include goethite and magnetite (Economou-Eliopoulos 2003)). In accordance with this, there is also a statistical correlation with an increased presence of hematite in surface collections towards the east of the archipelago.

Considering the island geomorphology and the map of magnetic signatures, the increase of magnetic sherds further east could be an indicator of increased isolation and reliance upon local clay/temper resources. Sites further west not only lie on the border between the high and low magnetic areas, but are more accessible to the portion of the mainland with a low magnetic signature, with ceramic patterning suggesting that westerly island sites have a greater proportion of ceramic attributes typically associated with mainland assemblages (e.g. TGR and comb decorations and ThGr2 rim forms). Therefore sites further west may contain a lower percentage of magnetic sherds as the assemblages become diluted by ceramics constructed from foreign, non-magnetic clays derived from contrasting geological sources, whereas more isolated sites away from trade routes are forced to utilise local clays. The comparatively reduced proportion of magnetism in mainland collections (aside from the anomalously high percentage of magnetic sherds at the isolated Kagera River sites in south-western Uganda; see Chapter 7) supports this notion.

Not all island sherds containing hematite inclusions are magnetic (regardless of the percentage presence of hematite within the fabric), and therefore only certain island sources may carry the high magnetic signature. This may have implications for provenience; we know that some raw materials are magnetic and some are not, which may relate to the locale from which they are derived, and there may be potential to trace the trade of ceramics produced from these iron-rich, magnetic clay sources further afield into alternate geomorphological areas within the region.

The increased incidence of magnetism to the east of the archipelago and specifically on Bubeke could also be explained by the local potters intentionally adding crushed hematite-rich rocks to their clay, rather than the natural inclusion of hematite within the island clays. Typically if rocks are being decisively crushed and added to clay as temper rather than arriving as a natural inclusion from weathering, the rock pieces will be quite angular and occur in a variety of sizes (Rice 1987a). Figure 8.19 shows a close-up image of a magnetic sherd from the islands, and the angularity and variation in the size of the dark, iron rich hematite inclusions does suggest that the addition may be intentional. Kohtamaki's (2010) study of Rwanda Twa potters records the collection and crushing of primary rock for addition as temper by potters located in Kibirizi village. This has implications for the use of terms such as 'temper' or 'inclusion' as discussed in Chapter 4, showing that mineral inclusions derived from crushed rock within the ceramics may at times be considered as a manually-added 'temper'. Perhaps then the ceramics constructed from clays naturally containing weathered hematite sources are no longer magnetic, and the ceramics containing intentionally added hematite-based tempers derived from the parent rock exhibit stronger magnetism.

Figure 8. 19: Close-up photograph of a sherd containing angular, irregularly sized, iron rich inclusions

Previous sections of this chapter have examined attribute clusters derived from the comparative ceramic collections alongside data from the Sesse Islands to interpret broader regional patterning in the archaeological materials. Suffice to say, as proof of its applicability the attribute-based method of analysis has successfully drawn out a number of crucial temporal and spatial patterns within the ceramic data, which have been further interpreted through theoretical dogmas associated with the social, political, and geographic setting of the islands.

8.6 Problems with the dating the archaeology of the Lake Victoria Basin

Previously I have mentioned the problems with dating individual ceramic rim/base forms and decorative techniques and then extrapolating that date to apply to all similar ceramics over a vast geographic area. Here we will consider the past dating evidence used to construct the previous ceramic typologies in light of the shortcomings of radiocarbon dating, followed by a discussion of the merits of a direct OSL dating of archaeological ceramics.

Virtually all known EIA radiocarbon dates in the Great Lakes region are derived solely from charcoal (Clist 1987), and the same is true for later radiocarbon dates from the Lake Victoria Basin. Ceramics have been dated by occurring in the same stratigraphic layers as these charcoal dates, or these dates from above or below have served as *terminus ante quem* or *terminus post quem* determinations. However studies within the Lake Victoria Basin and my own research (presented here in Chapter 5) suggest archaeological deposits in the region to be shallow, with many sites characterised by a single, often disturbed, horizon of archaeological activity. Considering the bioturbated nature of the tropical soils, it is difficult to confirm stratigraphic integrity, making the association of sherds with archaeological contexts containing dated charcoal dubious. This approach becomes further questionable when the few dates assigned to 'Urewe ceramics', based upon presumed stratigraphic association to charcoal samples, are then used to date all occurrences of physically similar pottery over a 400,000 square kilometre area from Kivu in the west to the Kenyan shores of Lake Victoria in the East, and Burundi in the south (Clist 1987).

Furthermore, contamination of samples by old or modern carbonates may cause large errors (Robertshaw and Collett 1983). The accuracy of samples may also be affected by the presence of humic acids and rootlets in the soil (Clist 1987). Considering the tropical forest environment, the low incidence of organic preservation in the highly acidic laterite soils, and the presence of small roots in all excavated trenches, this is likely to be a factor in the Lake Victoria Basin.

OSL dating offers an alternative to the often unreliable radiocarbon methods. The OSL technique is based upon the radiation in common minerals such as quartz and feldspar, which create an accumulation of electrons within 'traps' in the crystal latticework structure of the mineral. These electrons accumulate whilst the minerals remain buried (for example within the fabric of a potsherd or in a buried stratigraphic sediment), and the accumulation of electrons can be measured by exposure to a lamp or a laser in 'optically stimulated luminescence' (OSL) techniques. This frees the electrons from the 'trap' and causes them to glow; the intensity of the glow indicates how long the object was buried from sunlight or heat. The heating of the mineral (such as firing within pottery) or the exposure to sunlight (for example prior to the burial of sediments) clears the traps and resets the process of accumulating electrons, allowing the date of firing or sediment burial to be determined (Gibbons, 1997; Jacobs and Roberts 2007; see also Feathers 1996 for more in depth scientific explanation of the dating process).

OSL dating is superior to the similar thermo-luminescence dating (TL) as it require less than 10 grains of mineral-containing sediment to achieve a successful date, rather than thousands. Another merit lies in the application of OSL techniques to ceramics; due to the opaque nature of fired potsherds the trapped electrons within the minerals of the ceramic fabric are well protected from light and thus even if the sherd is recovered from an exposed surface context, the event of its firing may still be dated (Gibbons 1997). With the frequently exposed nature of archaeological ceramics in agricultural fields and erosional contexts within the Lake Victoria Basin, this would have great implications in the continued dating of these often un-stratified materials.

OSL dating however is not without its limitations. This technique is often used to date sedimentary layers at archaeological sites in an attempt to associate the material within those layers to a date of burial, based upon when the minerals in that layer were last exposed to sunlight (see Cochrane et al. 2013 for an application of the OSL dating methods to Stone Age sediments from southern Africa). However in these contexts there is no indication that the layer was exposed to light long enough for the 'traps' within the mineral structure to be emptied of electrons prior to burial, which often skews the dating outcome (Gibbons 1997). The technique is considered largely reliable for the dating of ceramics, though samples must have been heated to at least 300°C for the method to work (Jacobs and Roberts 2007). This temperature limitation should not prove a problem; in Cameroon Livingstone Smith (2001) records an average of 700°C for the lower temperature pottery firing events, and it is likely the firing of ceramics in East Africa were also conducted well above the 300°C threshold.

Despite these merits of OSL dating, I noted in Chapter 5 that only four of my six samples provided viable dates. With the brief knowledge of the OSL dating technique from the explanation above, Jacobs and Roberts (2007) describe the problem thus: "*the proportion of inherently bright and dim grains in each sample can be highly variable. The majority of grains in some samples can be intensely luminescent … whereas in other samples fewer than 1% of grains may be suitable for dating*" (Jacobs and Roberts 2007: 214). Although two of my samples were rejected, based on the above limitations of the technique, the remaining four dates may be accepted without most of the uncertainties which accompany radiocarbon dating in the same region. Therefore although no dating technique is completely accurate, we can increase the reliability of our dating evidence by carefully choosing the most applicable method for both the location and type of remains being dated. In the case of the Lake Victoria Basin, up till now radiocarbon dating has been the only method employed in dating the material uncovered from archaeological sites. However based upon the local environment (characterised by highly disturbed, acidic tropical soils) and the material being dated (ceramics), radiocarbon dating is too greatly flawed to provide a viable outcome. Instead OSL techniques provide a more suitable alternative, and future research should shun radiocarbon methods in favour of OSL dating.

8.7 The Use of Ethnographic Analogy and Historical Linguistics in the Interpretation of Ceramics

While this thesis has focussed on establishing an appropriate method of ceramic analysis to create a more useful database of the ceramic history within the Lake Victoria Basin, little attention has been given to the methodologies used to interpret such databases. A greater pool of ceramic data need be uncovered and recorded appropriately before such interpretation can begin in earnest, but I would like to make a brief comment at this point on the use of ethnographic analogy and linguistics in the interpretation of archaeological ceramics in general, and in the Sesse Islands in particular.

Archaeology focuses on trends in material culture patterning but struggles with non-material aspects such as socio-political and ideological interpretations of material culture. Ethnography is seen as a solution to this problem, and with pottery commanding a considerable amount of archaeological attention due to its durability and near ubiquitous presence in post-Stone Age assemblages, ethnographic studies of potting societies have become essential to interpretations (Herbich 1987). Kramer (1985) notes that ceramic ethnoarchaeology is essential in quashing ‘simplifying assumptions’ made of the material culture, with the ethnographic comparisons demonstrating ‘behavioural diversity’ within the ceramic producing societies. In other words, the trends present in the ceramic patterns of one society may be the reverse of patterns observed in other societies (Kramer 1985). Longacre (1991) also focuses on documenting variability within ethnographic pottery producing societies, thus encouraging archaeologists to be aware of the variability in ceramic manufacture with a consideration of how some attributes spread whereas others are limited by socio-linguistic or political boundaries (Hegmon 2000). These issues are apparent in the archaeology of the Sesse Islands and the surrounding Lake basin. Here there is evidence for the diffusion of comb and TGR decorations and ThGr2 rim forms from mainland sites to trade locales at Malanga Lweru and Bukasa 20, whereas both of these sites exhibit unique ceramics traits (ThGr6 rims and fine grained, grog tempered sherds respectively) which appear to remain within localised boundaries.

To account for the limitations of ethnographic analogy, archaeologists may either utilise analogy from a society which demonstrates historical continuity from the archaeological, or a society which operated under similar ‘boundary conditions’, i.e. economic, social, and political conditions (Stahl 1993; de Luna et al. 2012). However assuming similar boundary conditions does not imply a directly correlated analogy, and contextual understanding whereby the ethnographic data instead forms a comparative model is needed (Stahl 2003; Robertshaw 2012). (For papers devoted to ceramic ethnoarchaeology see Longacre et al. 2000; Longacre 1985; Costin 2000; Mills 989; Nelson 1991; David et al. 1991; Thomson 1991; Wandibba 2011; Neupert 2000; Agorsah 1990; MacEachern 1996; Stark 2003; David and Kramer 2001). With the variability recorded in ceramic ethnologies and the problems of direct analogy it is therefore best to consider ethnographies located as close to the study region as possible. With an absence of detailed ethnographic studies of potters within the Sesse Islands, in this work I have made reference to related work by Dietler and Herbich on the Luo, located on the eastern shore of Lake Victoria (Dietler and Herbich 1989), Kohtamaki (2010) on the Twa potters of Rwanda, and Cameroonian potters further afield (Gosselain 1992; 2000; Livingstone Smith 2000; 2001). From these studies it was possible to highlight aspects of nearby manufacturing traditions such as a wide variability of ceramic decorations within close spatial and temporal proximity, which question assumptions in previous Great Lakes typologies where decorative techniques correlate with social boundaries and remain unchanged for centuries.

There is an emerging trend in the use of historical linguistic reconstruction to aid interpretation of archaeological ceramic data. Ashley (2010) refers to linguistics associated with ‘food histories’ as an interpretation of vessel forms in the Great Lakes region, and McMaster (2005) utilises lexical evidence and archaeological data from the Uele River in the DRC to examine the introduction of roulette decorations into the Interlacustrine region. However older linguistic studies attempted to correlate the diffusion of languages directly to the movement of peoples; this was criticised for attempting to agglomerate cultures over vast spaces and time into a single shared tradition, and eventually the approach was dropped in favour of more localised, small scale linguistic investigation (de Luna et al. 2012). Despite these criticisms, new linguistic data often still falls into the same trap; recent work by Boeston (2007) attempts to utilise a lexical database of 5,800 pottery related terms from 400 different Bantu languages to examine the diffusion of ceramic style in eastern and southern Africa. However the resulting interpretations hinge on outdated radiocarbon sequences recorded prior to the 1980s which have since been extended (despite concerns over the accuracy of the dating technique), and propagates the rejected notion of homogenous cultural change through diffusion of ceramic styles and shared linguistic roots.

There is potential for a historical linguistic examination of the Sesse Islands to be of use. Aforementioned historical sources from multiple kingdoms around the Sesse Islands claim them to be at the centre of cult activities related to regional ideologies. With multiple oral histories laying claim to ritual practice within the islands, this may be ingrained in island dialects and loan words. The Sesse Island populations have been recorded in early ethnographies as speaking a distinct dialect known as 'Lusese' (Roscoe 1911). This dialect was unique to the islands as a separate socio-political entity to any of the surrounding kingdoms. With surrounding kingdom histories detailing visits and pilgrimages to major cult sites within the islands, it is likely the surrounding dialects may have exerted certain modifications to the Lusese patois. A detailed recording and study of Lusese may reveal the extent of the interaction between the kingdoms and the island populations. Although the sleeping sickness epidemic at the beginning of the twentieth century forced an evacuation of the islands (Soff 1969), during my research I encountered elderly people who stayed or returned to the islands and still speak Lusese. These Lusese speakers were typically either shrine caretakers or spirit mediums, implying perhaps that the dialect is related to the cult practice within the islands. As an example, while conducting my 2007 research one spirit medium who was communicating with me in Luganda (through a translator) then went under possession and began shouting the words of the inherent spirit in Lusese (which was translated by his wife). According to the informant, Lusese is the language of the ancestors. Therefore a comparison of the Lusese dialect with the surrounding mainland vernacular may reveal crucial information on the history and development of cult practices and social interaction within the Sesse Islands, and between the islands and the mainland kingdoms.

8.8 Summary

Within this chapter I have discussed the results of the ceramic analysis conducted during the course of my research in the Sesse Islands. From these results it is apparent that there is little place for the old ceramic typologies in the Lake Victoria Basin, which must be supplanted by the more objective and replicable attribute-based methodology of analysis. Only by disassociating ceramics from older discussions of type-fossil led, cross-regional 'ware types' can the archaeology of the Great Lakes region progress to incorporate new material.

Explanations have been offered for the attribute patterning identified in ceramics recovered from survey and test-excavations on Bubembe, Bukasa and Bubeke Islands. These interpretations take into account the surrounding archaeological material from the lakeshore to examine regional patterning in an attempt to identify material evidence of interactions between the coastal and island populations over the aquatic boundary. From this analysis emerges evidence for both interaction, through the presence of trade routes, and selective isolation, through distinct expressions of ceramic identity within the island assemblages.

This work has so far only been based on a survey, several test-pits, and a re-analysis of older ceramic data. The promising results indicate that a lot more work is to be done in re-defining the ceramic chronologies of the Lake Victoria Basin, and only then can true interpretation of the ceramics in relations to the surrounding socio-economic and political environment be attempted. The following chapter concludes this work with suggested directions for future research.

Chapter 9: Conclusions

Before presenting recommendations of further research, I wish to remind the reader of the aims, approach, and results of this study through a summary of the work presented within this thesis. Chapter 1 began by outlining a research focus primarily concerned with problems in the current ceramic typologies employed in the Great Lakes region. As a solution an attribute-based method of analysis was offered as a viable alternative to the older ceramic methodologies, due to its successful application in West Africa (McIntosh 1995a), and the current research set out to test the viability of these newly proposed methods on a dataset from the Sesse Islands.

These islands were perceived as historically important for the surrounding populations as the locus of traditional cult practices, yet little previous archaeological work had been carried out on them. The geographical nature of the island location called for a consideration of the interactions between coastal and island populations over the imposed aquatic boundary, a research interest which has been propagated by the discipline of Coastal and Island archaeology but only applied to marine, rather than lacustrine, examples in East African archaeology. Therefore the results of this work intended to be twofold: to test the utility of the attribute-based method of analysis, and to gain a greater understanding of regional socio-economic interactions across an island landscape.

Chapter two led the discussion by detailing the previous ceramic research conducted in the Great Lakes region, explaining the methodologies employed. These tended to rely on ceramic types based largely upon the presence of specific decorative motifs and rim and base forms, which had been imbued with broad chronological indices from a handful of dated sites. Similar material expressions of these ceramic 'types' were than assumed to be contemporaneous in their appearance at any site over a broad geographic area. Based on these typologies, an account was given of the previously recorded archaeological sites around the Lake Victoria Basin with their perceived chronological dates. Chapter three went on to relay a criticism of these past approaches, highlighting an over-reliance on the use of basic decorative tools (e.g. stylus) as a distinguishing feature of temporal periods, despite regional ethnographic sources suggesting ceramic decoration and vessel forms to be a poor indicator of temporal change. Instead these ethnographic sources demonstrated the fundamental levels of the *chaîne opératoire* of ceramic manufacture to be more culturally distinctive through an inherited knowledge, such as the sourcing of clay and the mixing with tempers. Another crucial flaw in the old methodologies was the reliance on pre-existing 'types' recorded in outdated culture-historical research with only minor modifications since inception, which causes new ceramics to meet a check list of criteria for them to be fitted within a typological category before the sherds can be analysed and interpreted; this does not contribute any new knowledge to understanding ceramics within the region, as it propagates a notion of homogeneity in regional ceramic technologies, thus risking disregarding internal innovation.

These pre-determined regional chronologies were presented as established fact, yet they were completely reliant on a sparse number of radiocarbon dates which for the most part have derived from the dating of entire archaeological horizons rather than individual artefacts and features. In a region characterised by single context sites and highly disturbed tropical soils this dating method becomes even more unacceptable.

The attribute-based method of analysis was proposed for a more appropriate handling of the ceramic archaeology. Merits of the method lie in the independent recording of numerous attributes for individual sherds. A sherd does not have to exhibit several pre-defined traits to be deemed worthy of analysis, and the different attributes recorded for each sherd can then be independently cross-compared over space and time. Rigorous statistical methods are applied to the data as part of the method to ascertain whether certain attributes recurring in certain geographic areas or stratigraphic contexts exist by chance, or represent a design feature favoured by the local ceramic manufacturing tradition. This builds a picture of the ceramic features selectively favoured by different potters over space and time, with the ability to highlight either minute changes, such as the persistent use of a decorative or forming technique but a change in temper/inclusions or clay source, or to recognise large scale change within the ceramics.

With the ceramic recording methodology and techniques of analysis laid out, Chapter four presented a fieldwork methodology aimed at recovering new archaeological data from Bubembe, Bukasa and Bubeke Islands in the Sesse archipelago. These islands were selected as they had been named in ethnographic histories and oral traditions as the most active in cult practices related to the traditional ideologies followed around the Great Lakes region. Research on the most populated island in the archipelago had revealed new examples of ceramic expression within the Lake Victoria Basin, and it seemed likely that a new wealth of ceramic information could also be gained from investigations of Bubembe, Bukasa and Bubeke. A survey technique suitable to the densely vegetated tropical environment was proposed, based on the success of similar methodologies elsewhere in the Interlacustrine region.

Chapter five presented the results of the survey, which identified 13 archaeological sites on Bubembe, 39 on Bukasa, and 8 on Bubeke, based primarily on surface scatters of ceramics. Two sites were selected from each island for test excavations to ascertain the nature of the sub-surface archaeological remains at sites which offered the most promising surface collections. These excavations are reported within Chapter five.

Chapter six went on to offer a statistical analysis of the sherds from survey and excavation, with all information recorded using the attribute-based recording method proposed earlier in the thesis. These results produced some spatial and temporal patterning in the distribution of ceramic attributes within the three fieldwork islands. The text within Chapter six explores these patterns and provides a sequence in the stratigraphic patterning of ceramic attributes at the fieldwork sites, which divides the excavated ceramics into three chronological phases. The 'Early Period' ceramics are characterised by a high 60-70% presence of fine-grained ceramics with a 25-36% presence of grog tempers, and low 8-18% incidences of hematite and 5-9% of magnetism. In the 'Middle Period' the proportion of fine-grained sherds in ceramic assemblages reduces drastically to 5-36% in favour of coarse and medium grained fabrics, with grog tempers also falling to a 4-11% presence. This correlates with an increase in the presence of both hematite and magnetism up to 25%. Cord-wrapped paddle decorations make an appearance of 3% near the presumed end of this Middle Period, with a climb to 33% in the Late Period assemblages. During this time grog and fine-grained fabrics almost fall out of use at 0 – 2% and 0 - 3.5% respectively. This reduction correlates with an increase of both coarse and medium grained fabrics, hematite (up to 40%), and magnetism (up to 62%). With these results we see that from a small number of excavations, the attribute-based method of analysis combined with statistical testing allows patterns in ceramic manufacture to be easily drawn out from the data. There is evidently great potential for this technique to be applied to a greater range of sites throughout the region to build an even more accurate picture of temporal and spatial change in the Great Lakes ceramic manufacturing traditions.

Chapter seven went on to offer a re-analysis of ceramic assemblages from Bugala Island, located in the far west of the Sesse archipelago and the shores of the Lake Victoria Basin, which had previously been recorded using older, outdated methodologies. Subsequent to a new attribute-based recording and analysis of these collections, comparison with the fieldwork data sought to examine a broader picture of regional ceramic attribute patterning and highlight differences between the ceramic traditions of coastal and island populations. The presence of ThGr2 rims and comb and TGR decorations, typically associated with mainland ceramics, at Malanga Lweru on Bugala Island and BKS 20 on Bukasa implied some level of trade and interaction between these island sites and the mainland coast, whilst the almost-unique presence of ThGr6 rims at Malanga Lweru and fine-grained, grog tempered ceramics at BKS 20 offered traits of the local ceramic manufacturing traditions as distinct from the imported goods. Later trade interactions appear to have taken place directly between Bubeke Island in the isolated northeast of the archipelago and Namusenyu on the northern mainland coast, based upon the shared association with cord-wrapped paddle ceramic decorations and EvGr1 rimmed open-collared bowls.

Based on a synthesis of the results of this study and the background of the Sesse Islands which were presented at the beginning of this thesis, Chapter eight offered an interpretation of the ceramic patterning in light of the relevant theoretical discourse. There appears to be evidence for two trade routes existing between the islands and the mainland at different points in time, with evidence for regional micro-styles in ceramic manufacture within the islands suggesting pockets of independent ceramic expression at older trade locales developed as a form of corporate identity.

Considering this wealth of information has been derived from just four islands in the Sesse archipelago, three of which have been investigated archaeologically for the first time in this thesis, there is great potential to explore the rest of the islands and the remaining lakeshore. From this it may be possible to build a very detailed history of trade movements and human interaction within the Sesse Islands as part of wider trade networks which may extend south to Tanzania or East to Kenya, as suggested by the imported trade goods found at Malanga Lweru (Ashley 2005), which now appears to be part of a trade network which included Bukasa Island. There may also be potential in uncovering routes associated with the trade in salt which may have reached north to Kibiro, based on the presence of numerous CWR roulettes both at Kibiro (Connah 1996b) and throughout the Sesse Islands.

A multidisciplinary approach can aid future interpretation of both new and existing ceramic data emerging from the Lake Victoria Basin. Although it was beyond the scope of this project, Chapter Eight discusses the potential to record crucial linguistic data from the Sesse Islands, where the rapidly dying Lusese dialect may shed light on past cultural interactions within this liminal zone between the Great Lakes kingdoms. This linguistic data could potentially reflect upon the diversity of material expression inherent within the island assemblages, and may allow inferences to be drawn upon the supposed historical involvement of multiple Interlacustrine Kingdoms in the ritual histories of the islands.

OSL dating has played an important part in questioning the previous ceramic typologies propagated throughout the Lake Victoria Basin; through the new practice of directly dating ceramic sherds themselves, I have been able to disprove prior assumptions of date associations with specific decorative techniques thought to exist in the absence of any other contemporary techniques. Previous typologies associated the exclusive use of neat stylus as a decorative tool with older ceramics which disappeared around AD 800, though in the current study similar stylus decorations are dated to AD 1204, and they co-occur with other decorative techniques presumed to be older, such as comb. The propagated use of the OSL dating technique will be essential to the redevelopment of a regional chronology, which will be crucial in generating an understanding of cultural developments throughout the history of the Lake Victoria Basin.

The Sesse Islands have also offered the new potential to examine historic building structures (evident in the post holes from Bukasa 20), and EIA iron smelting (from the tuyeres at Bubeke 1). Currently little is known of either aspect from the history of the Lake Victoria Basin, yet more rigorous exploration of the islands may reveal this missing link. Currently settlements within the islands and on the lakeshore are identified and interpreted solely from ceramic scatters yet here may be the rare opportunity to investigate past settlement structures. Furthermore, the EIA is identified by presumed iron tool use but with no evidence of manufacture, yet here in the islands there is an opportunity to explore early smelting technologies in the Lake Victoria Basin.

The next step in the archaeological investigation of the region would be a more in- depth and large scale excavation of two unique and important sites, Bukasa 20 and Bubeke 1, as part of an exploration of the remaining islands and lakeshore. All results need to be examined in terms of their localised patterning, with the aim to identify small-scale ceramic manufacturing traditions evident through minor changes in the proportions of ceramic attributes present within the ceramic assemblages. Investigations on a wider regional scale need to focus on manifestations of interactions such as trade networks between these individual populations with their own ceramic histories, rather than attempting to seek out a broad and unchanging ceramic manufacturing tradition persisting through space and time. A more extensive use of OSL dating will be necessary to support the integrity of these newly emerging patterns.

Very applicable here is Robertshaw's (2012) concluding statement in his call for a multi-disciplinary approach in the future of African archaeology:

> "*the quest for success in these endeavours will require both adequate long-term research funding, a willingness to embrace new methods and technologies, and a determination to seek out the diversity of data that might otherwise be subsumed within the taxonomic cultural-historical boxes that might have served us well in the past but now threaten to constrain our imagination.*"
>
> (Robertshaw 2012:105)

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Appendix

Appendix A1: Recording Ceramic Attributes

A1.1 List of Attributes to Record

For all sherds:

1. **Sherd Code**
2. **Temper**
3. **Fabric Grain Size**
4. **Composition**
5. **Sorting**
6. **Rounding**
7. **Thickness**
8. **Décor**
9. **Burnish**
10. **Slip**
11. **Firing**
12. **Magnetism**
13. **Photograph**
14. **Comments**

For rim sherds only:

15. **Vessel Form**
16. **Rim form**
17. **Rim angle**
18. **Diameter**
19. **Rim thickness**
20. **Body thickness**

For base sherds only:

21. **Base Form**
22. **Base Diameter**

A1.2 Recording Techniques for Each Attribute

Figure A1.1 and A1.2 provide an example of the attribute recording form for body sherds.

1. **Sherd Code**

   Incorporates site and sherd number for surface assemblages (e.g. BKS 12/1), and site, context, and sherd number for excavated ceramics (e.g. BKS 20-11/004/1)

2. **Temper**

   Material added the raw clay e.g. grit, grog, sand. Identification is made using a hand lens at 25x magnification. (See page 106-108 for a discussion and definition of the term 'temper')

3. **Fabric Grain Size**

   Record the clay grains as coarse (>0.5mm), medium (0.25<0.5mm), or fine (<0.25mm) based on particle size using either direct measurement with graticules on hand lens or comparison to a reference sample (e.g. the sand grain sizing chart produced by Kent State University and sold via various online shops, see Figure A1.3)

4. **Composition**

   Minerals naturally present in the clay and/or added temper e.g. quartz, mica, hematite, feldspar, rose quartz.

5. **Sorting**

   How well ordered the constituents within the clay are in relation to size with one another e.g. well sorted to poorly sorted, measured by comparison to either reference sample or diagram (see Figure A1.3)

6. **Rounding**

   Rounding of the minerals and temper in the clay e.g. angular, sub angular, sub rounded, or rounded, measured by comparison to either reference sample or diagram (see Figure A1.4)

7. **Thickness**

   Measurement of the thickest part of the sherd in centimetres using callipers

8. **Décor**

   Create three fields to record tool used to produce décor (e.g. KPR, stylus, comb, etc.), the action used to apply this decoration (e.g. cross hatching, linear band, stamping, dragging, rouletting, etc.), and the location of the decoration (on body sherds this is simply interior or exterior; on rims this refers to different zones on a pot such as lip, collar, neck, shoulder, etc.) (see Figure A1.5 for an example of décor recording sheet and Figure A1.6 for a guide to recording location of decoration)

9. **Burnish**

   Create two fields to record presence/absence, and location on the sherd/pot

10. **Slip**

    Create two fields to record colour of slip and location

11. **Firing**

    Break a corner off the sherd and create three fields to record the firing of the exterior, interior and core of the sherd as either 'oxidised' or 'unoxidised' based on colour (see Figure A1.7)

12. **Magnetism**

    This is whether the can be picked up or moved by a magnetic, recorded as 'magnetic' or 'un-magnetic'

13. **Photograph**

    Provide reference number of any photographs taken of the sherd

14. **Comments**

    Record any anomalous observations of the sherd e.g. heavy surface erosion, visible residue on sherd, etc.

The same attributes were recorded for rim sherds, with the additional fields below added. When examining rim sherds, in the absence of complete vessels the rim is first orientated with the rim upright and perpendicularly to a hard flat surface, such as a book. The rim is then rocked on its lip, and the point at which the least amount of light is visible between the rim and the hard surface is taken as the orientation of the rim. This technique is best learned by demonstration from someone with prior experience in ceramic recording. From the angle and shape of the rim and neck portion of the vessel it may be possible to estimate the total vessel shape.

15. **Vessel Form**

    Recorded numerically to correlate with jar, bowl, open-collared bowl, collared jar, plate, pipe, etc. (see Figure A1.8)

16. **Rim form**

    Rim forms are categorized by manufacturing techniques (everted (E), thickened (T), or simple (S)) and numerically grouped into similar styles (e.g. E1 denotes an everted rim of style 1). For each rim form a 1:1 rim profile was drawn to aid quick identification of the rims (See Appendix A2 for illustrations of all rim profiles)

17. **Rim angle**

    This is a numerical value from 1 to 5, with 1 indicating tightly closed, and 5 indicating wide open (see Figure A1.9)

18. **Diameter**

    The diameter of the rim is measured from the interior of the sherd against a diameter chart and recorded in centimetres (see Figure A1.10)

19. **Rim thickness**

    Record the thickest part of the rim in centimetres using callipers

20. **Body thickness**

    Record the thickest part of the body in centimetres using callipers

The additional fields are necessary for the recording of base sherds:

21. **Base Form**

    The base form is recorded according to its form as illustrated in Figure A1.11

22. **Base Diameter**

    Diameter of the interior flat portion of the base measured with callipers

Sherd code	Temper	Composition	Fabric Grain Size	Sorting	Rounding	Sherd Thickness	Décor 1		
							Tool	Action	Location

Figure A1. 1: Example sherd record form part 1

Décor 2			Décor 3									
Tool	Action	Location	Tool	Action	Location	Burnish	Slip	Exterior Ox/Re	Interior Ox/Re	Core Ox/Re	Photograph	Comments

Figure A1. 2: Example sherd record form part 2

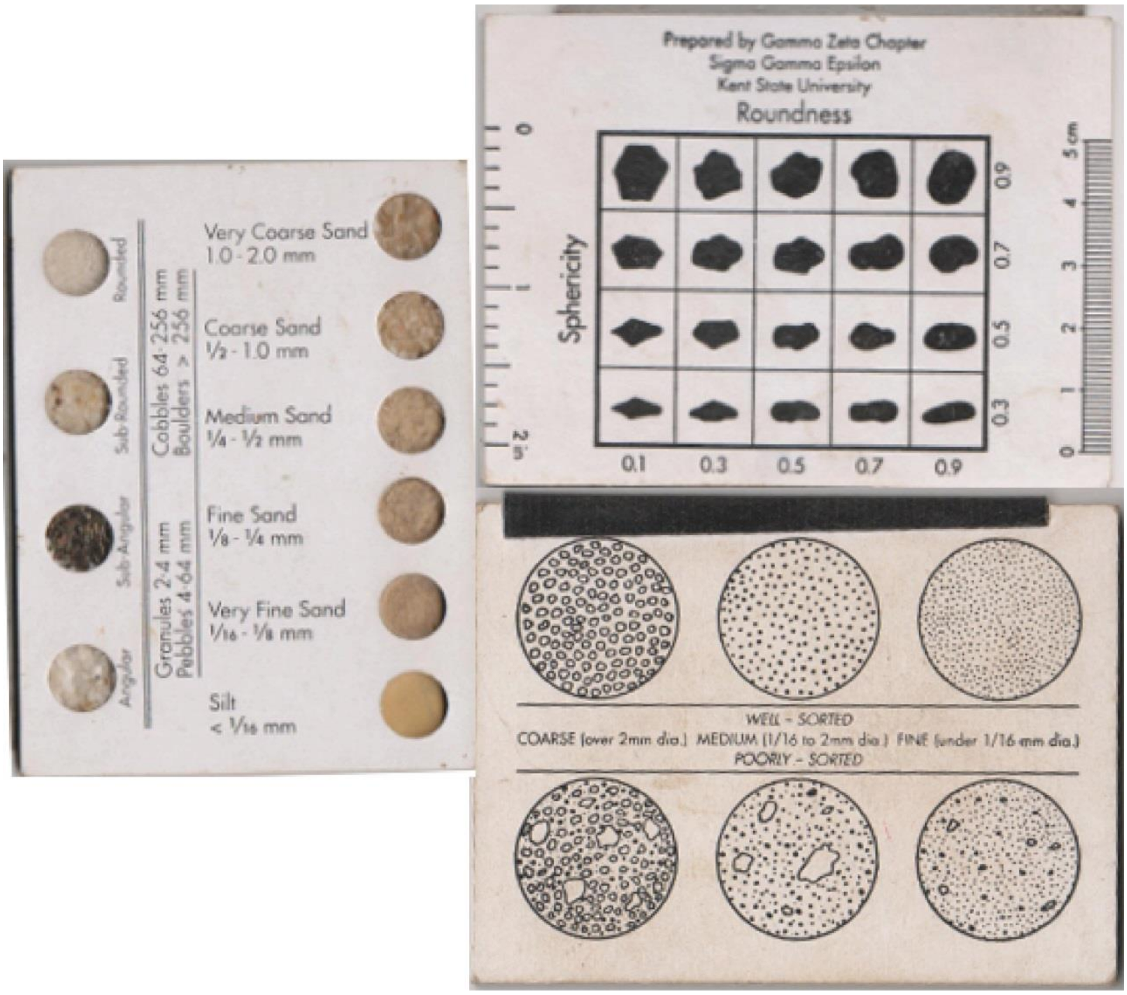


Figure A1. 3: Scan of the Kent University sand grain recording pocket chart

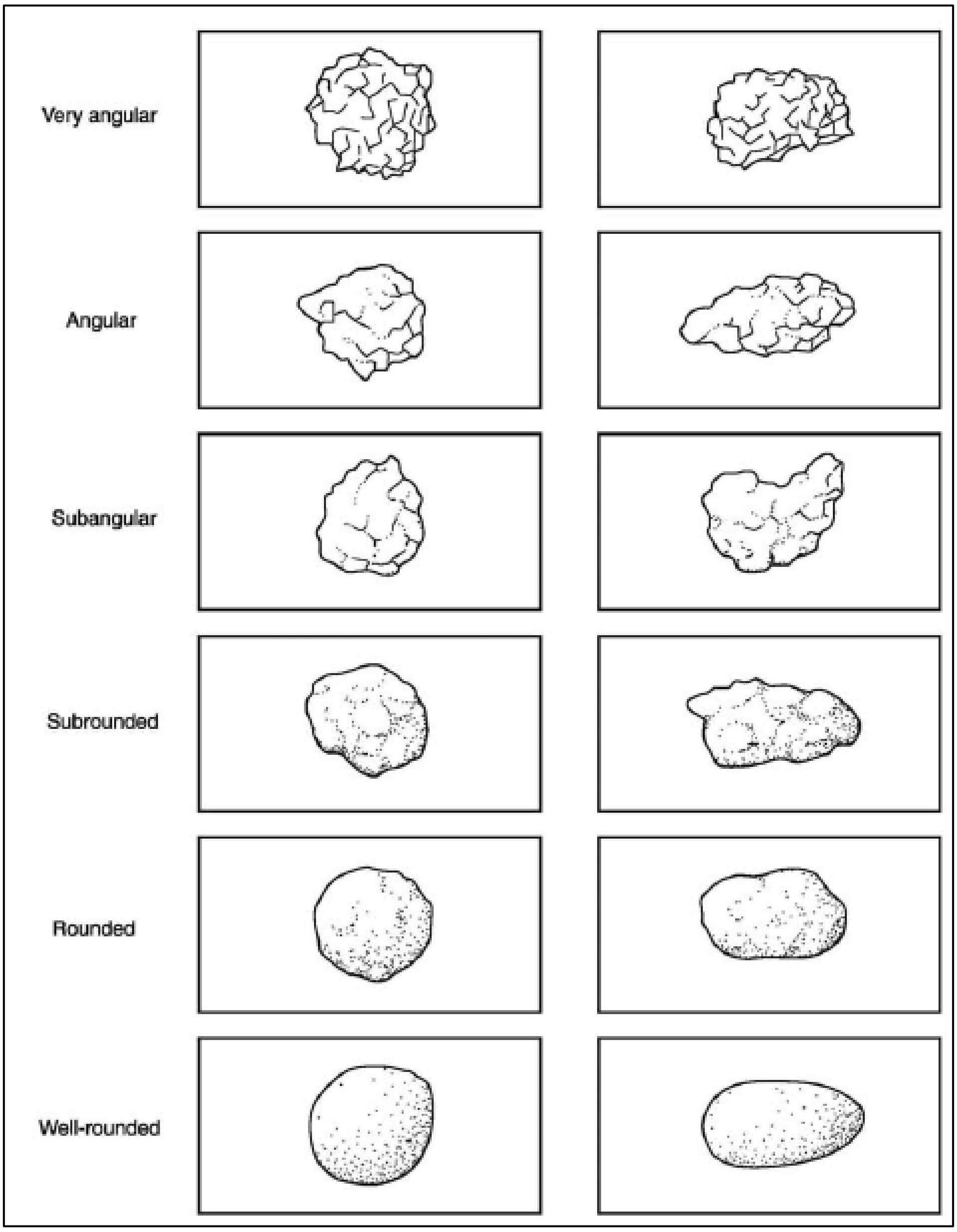


Figure A1. 4: Angularity chart (taken from PCRG 2010:52)

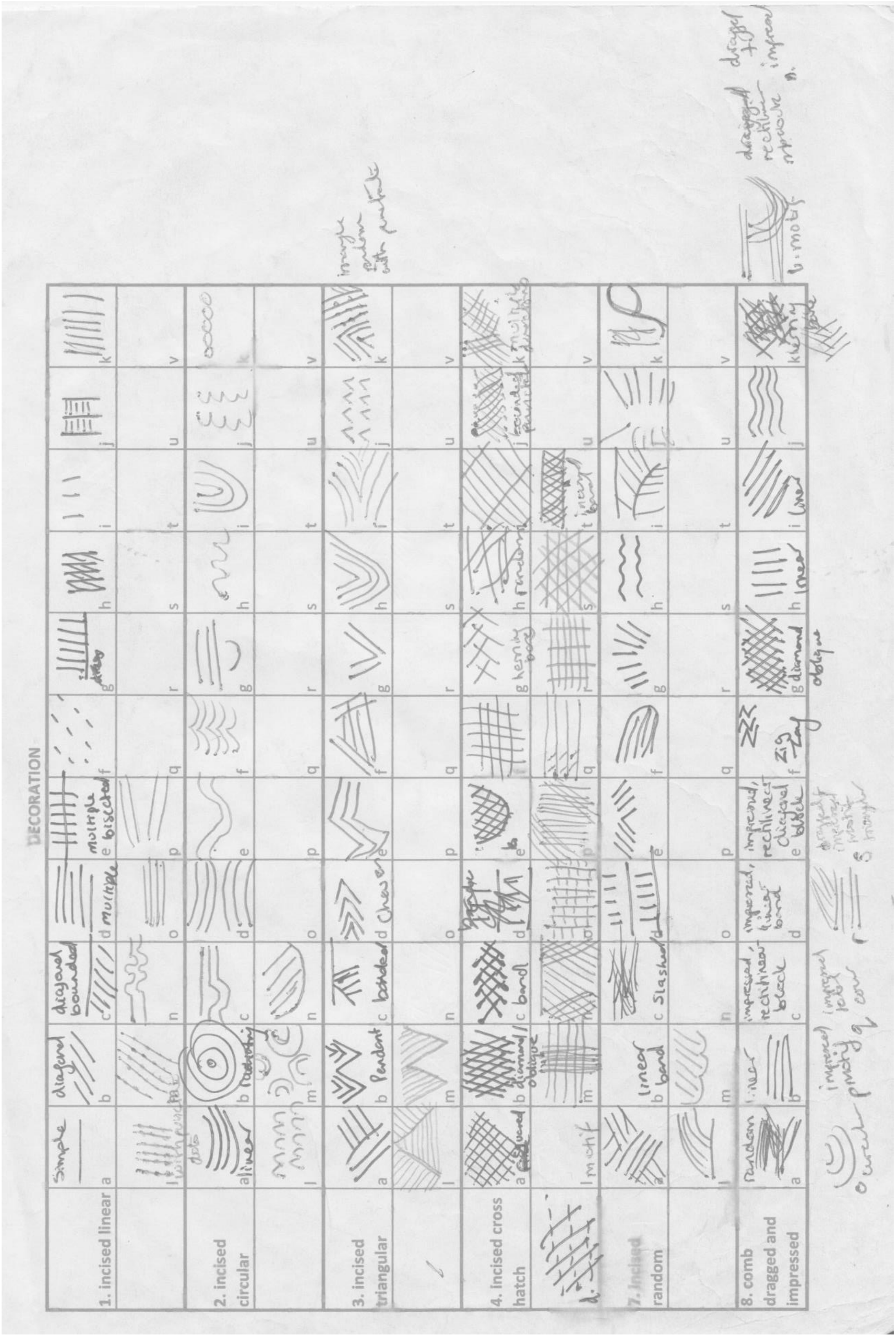


Figure A1. 5: Example of stylus and comb motifs recorded during ceramic analysis

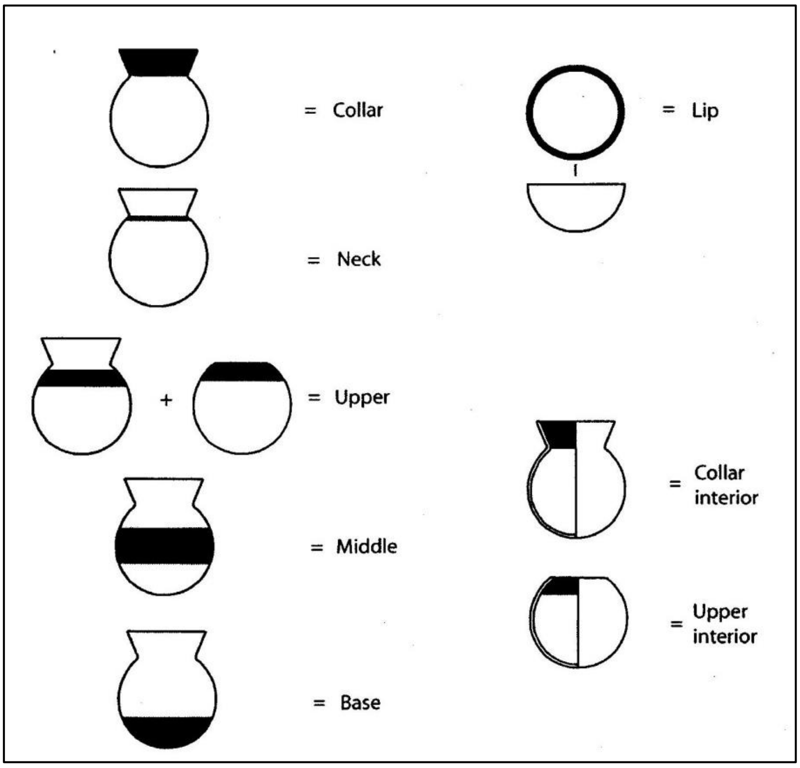


Figure A1. 6: Decoration recording zones (From Ashley 2005:190)

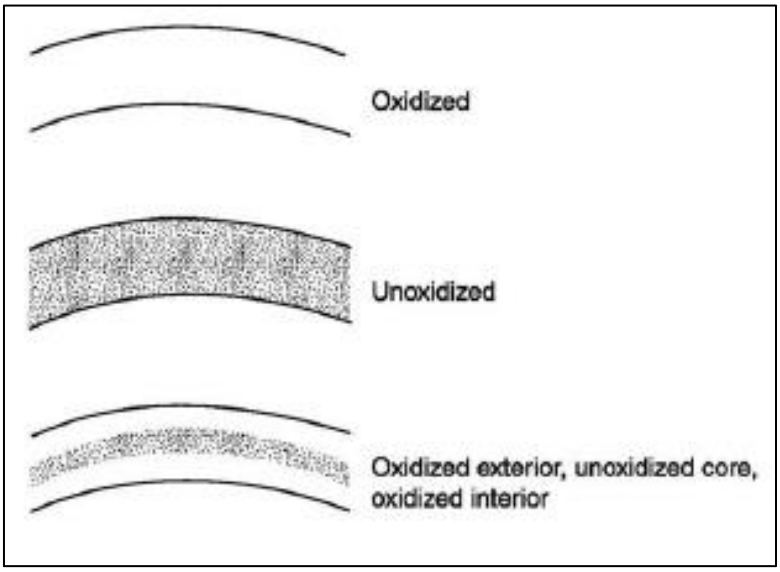


Figure A1. 7: Illustration to aid identification of firing of the core, interior and exterior of ceramics (taken from PCRG 2010:54)

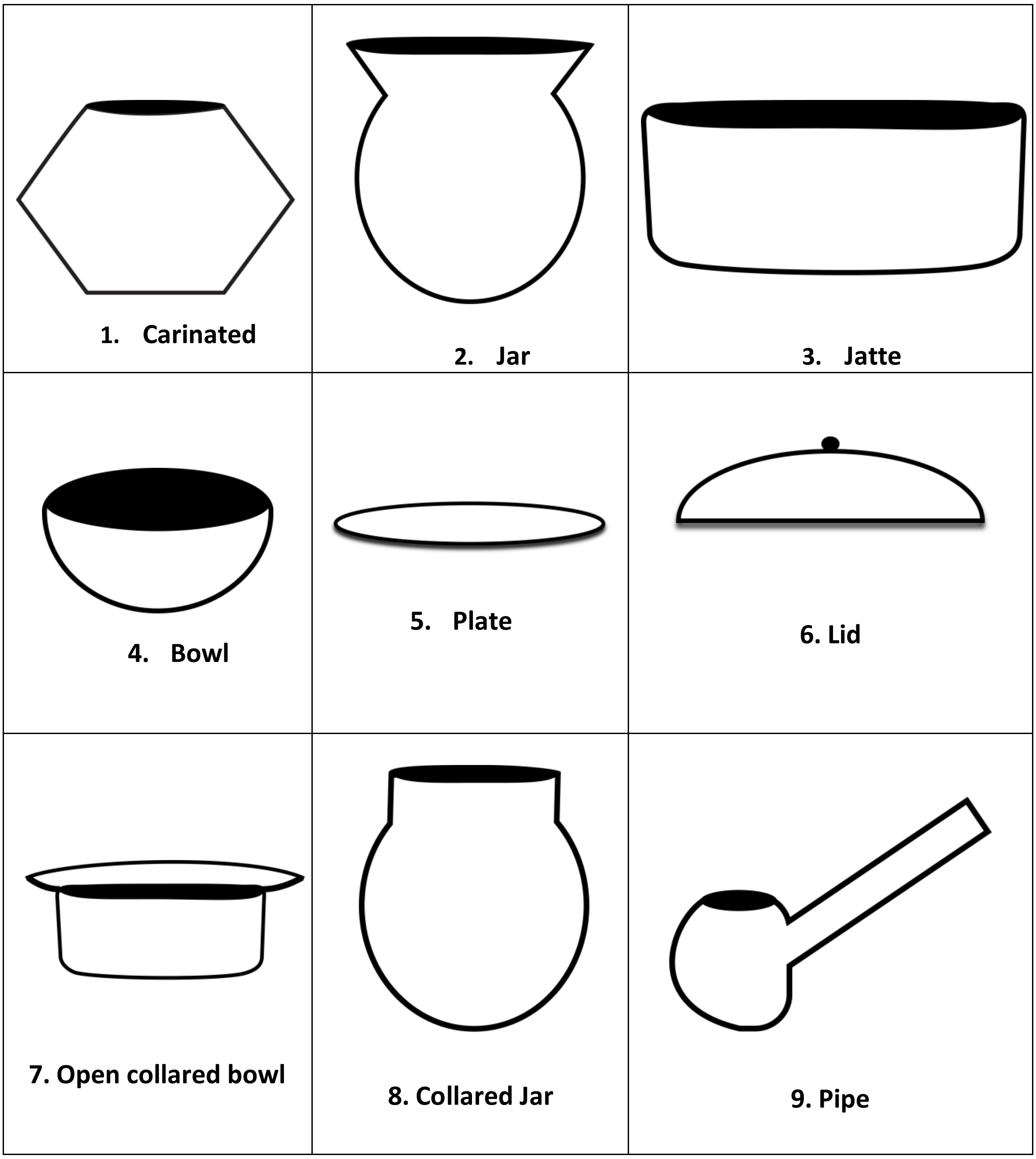


Figure A1. 8: Guide to vessel forms

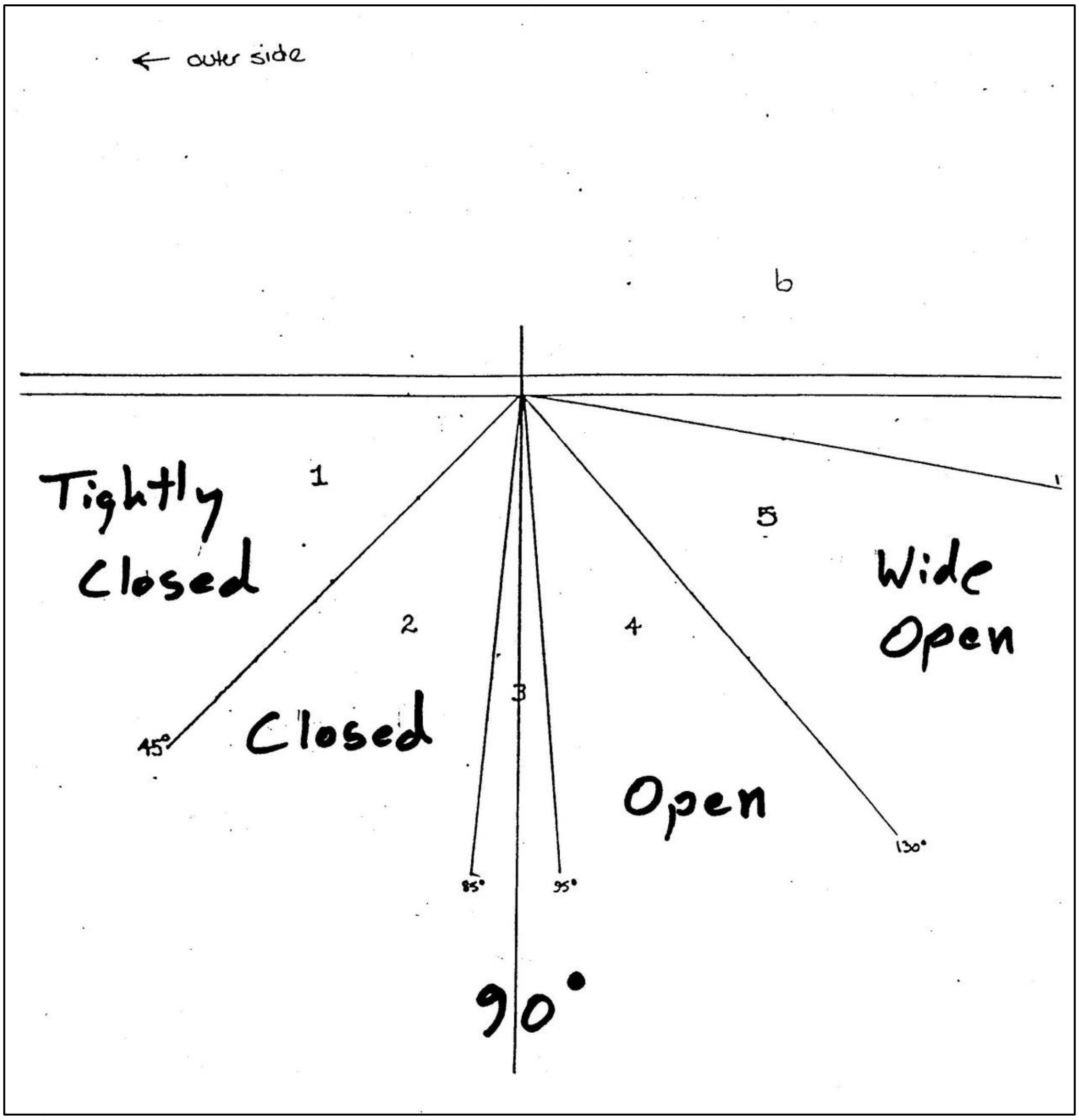


Figure A1. 9: Guide for calculating rim angle (from Ashley pers. comm.)

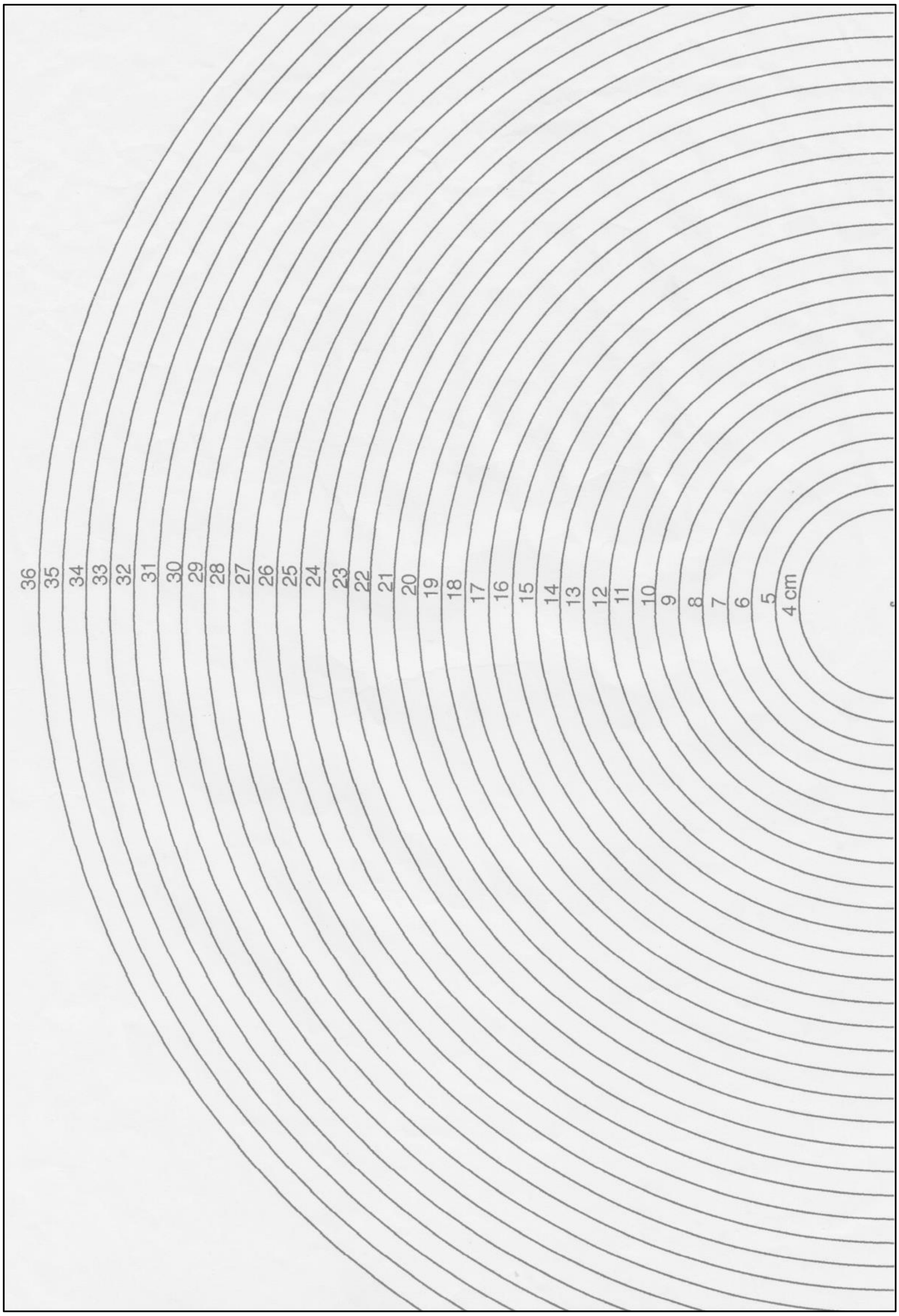


Figure A1. 10: Rim diameter chart (not to scale; from Ashley pers. comm.)

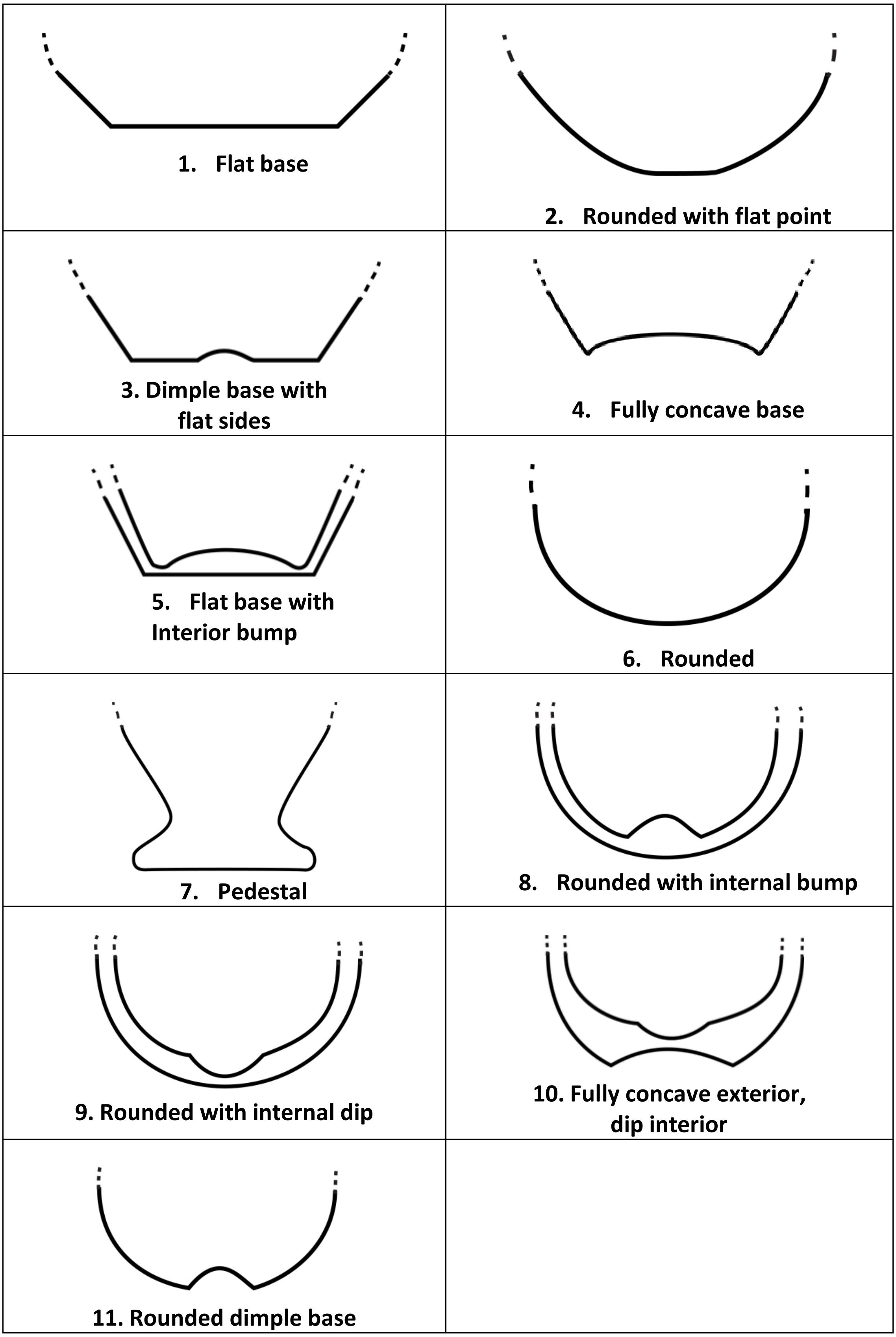


Figure A1. 11: Guide to base forms

Appendix A2: Rim Profiles

A2.1 Everted Rims

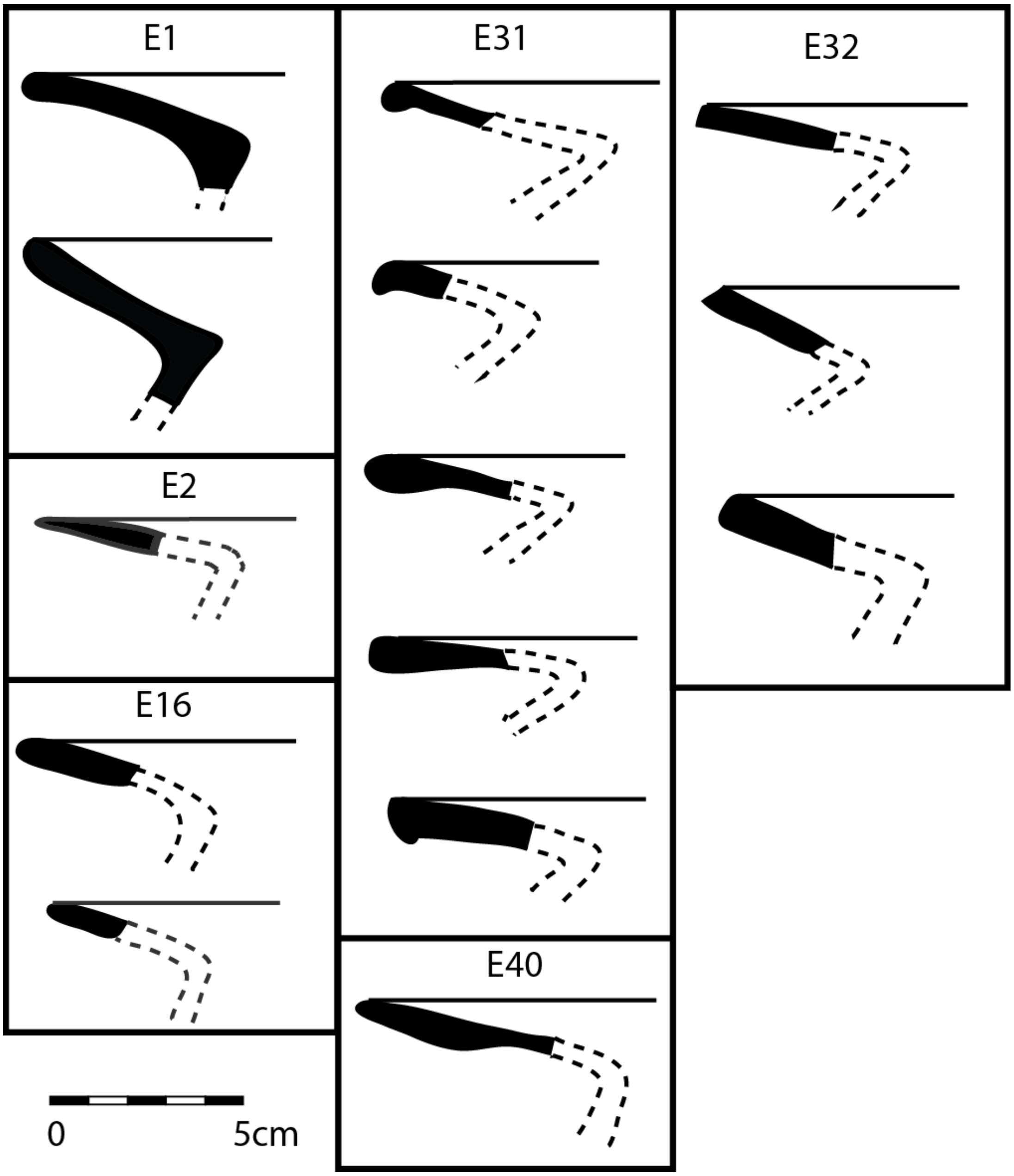


Figure A2. 1: EvGr1 rims (everted and open with wide collar)

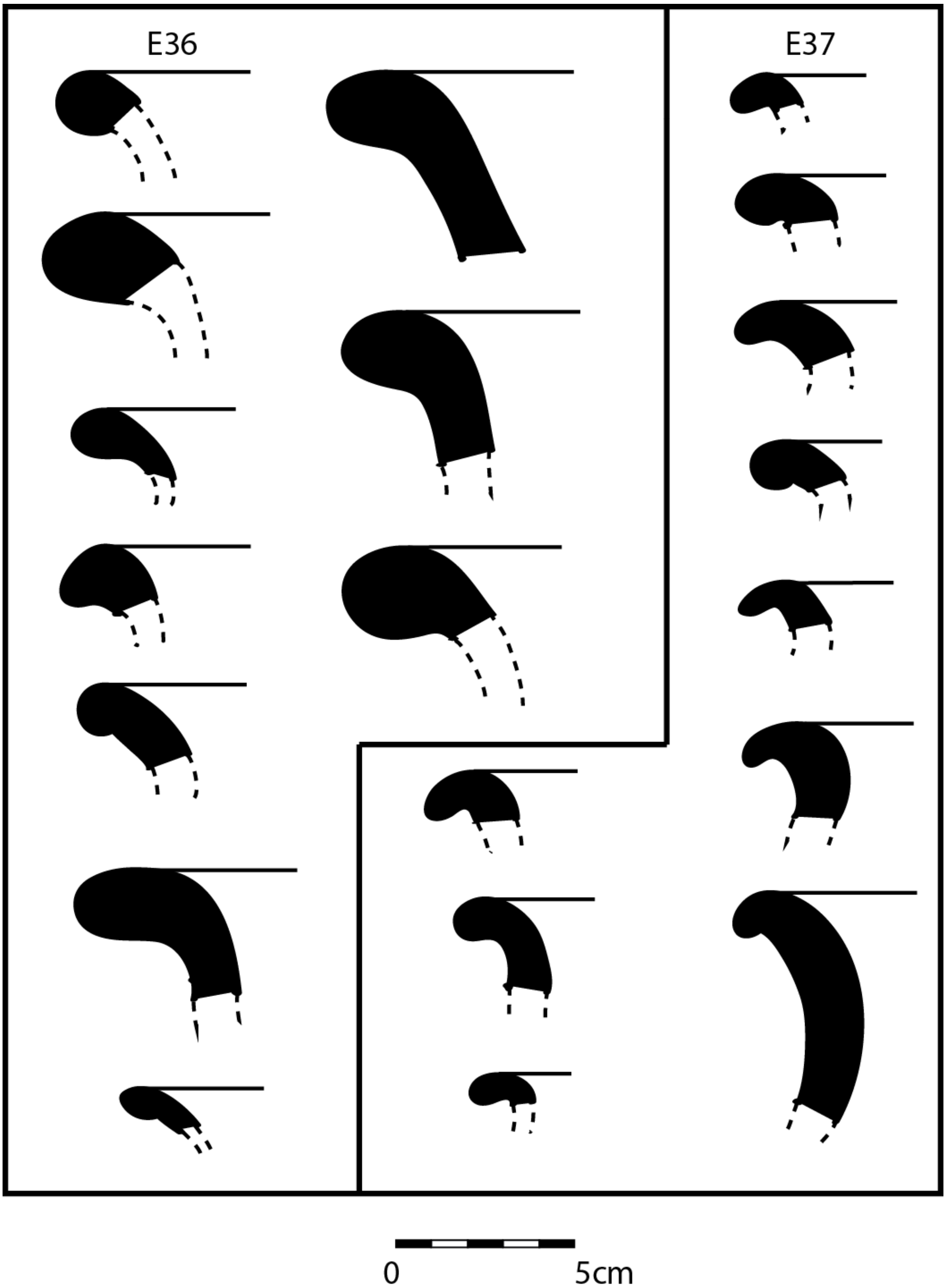


Figure A2. 2: EvGr2 rims (everted and flared open with heavy external thickening)

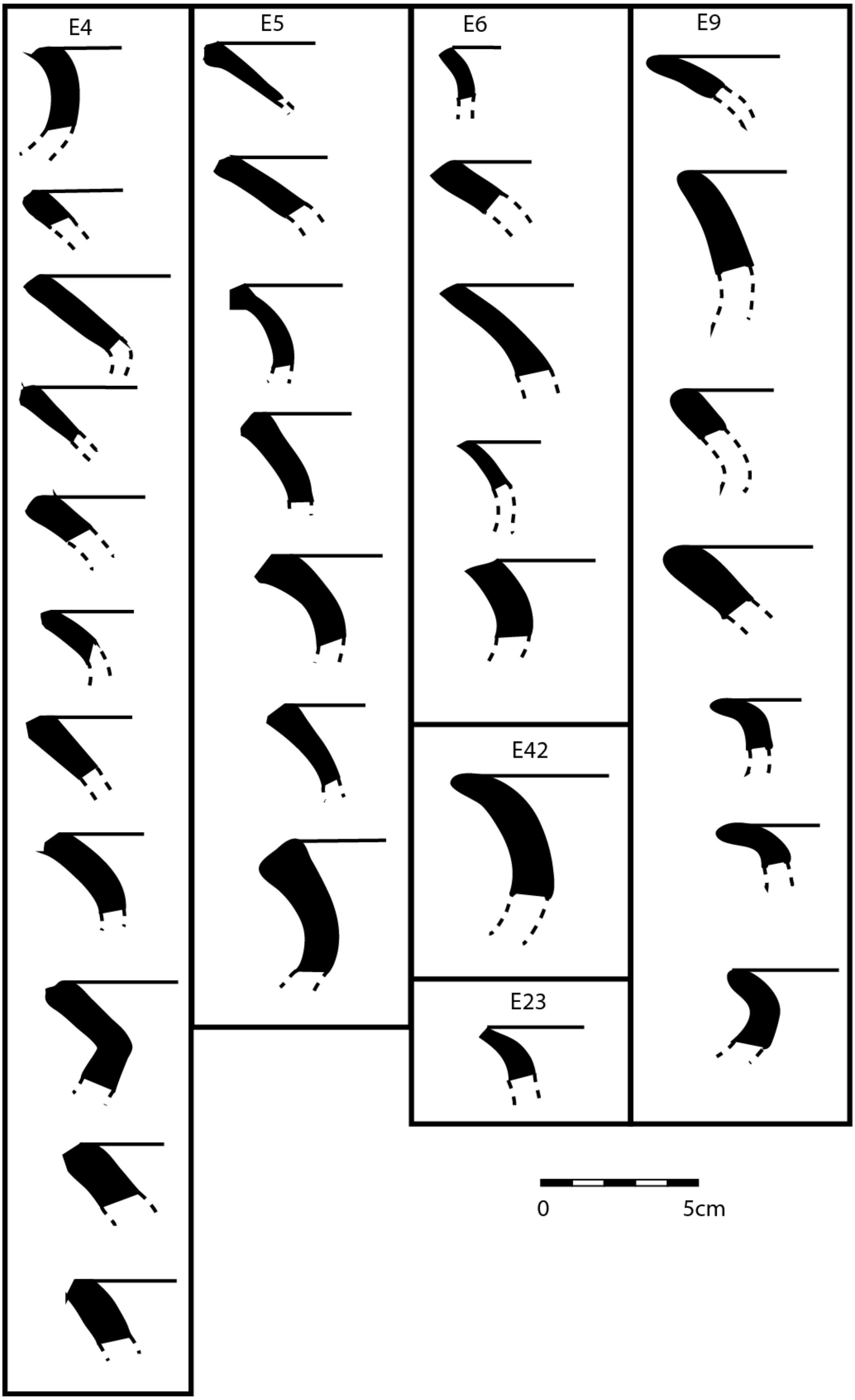


Figure A2. 3: EvGr3 rims (flared open and un-thickened)

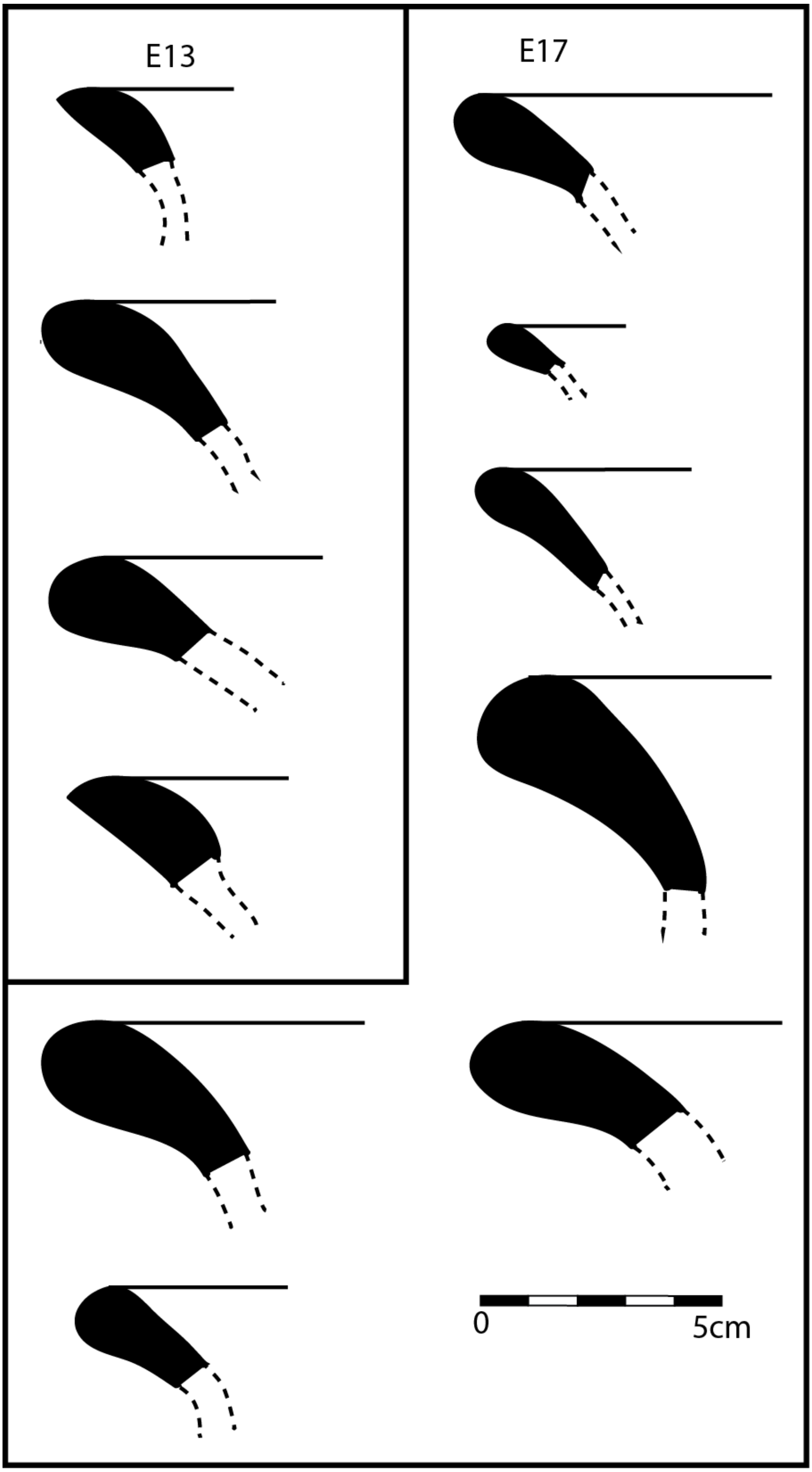


Figure A2. 4: EvGr4 rims (flared open and thickened)

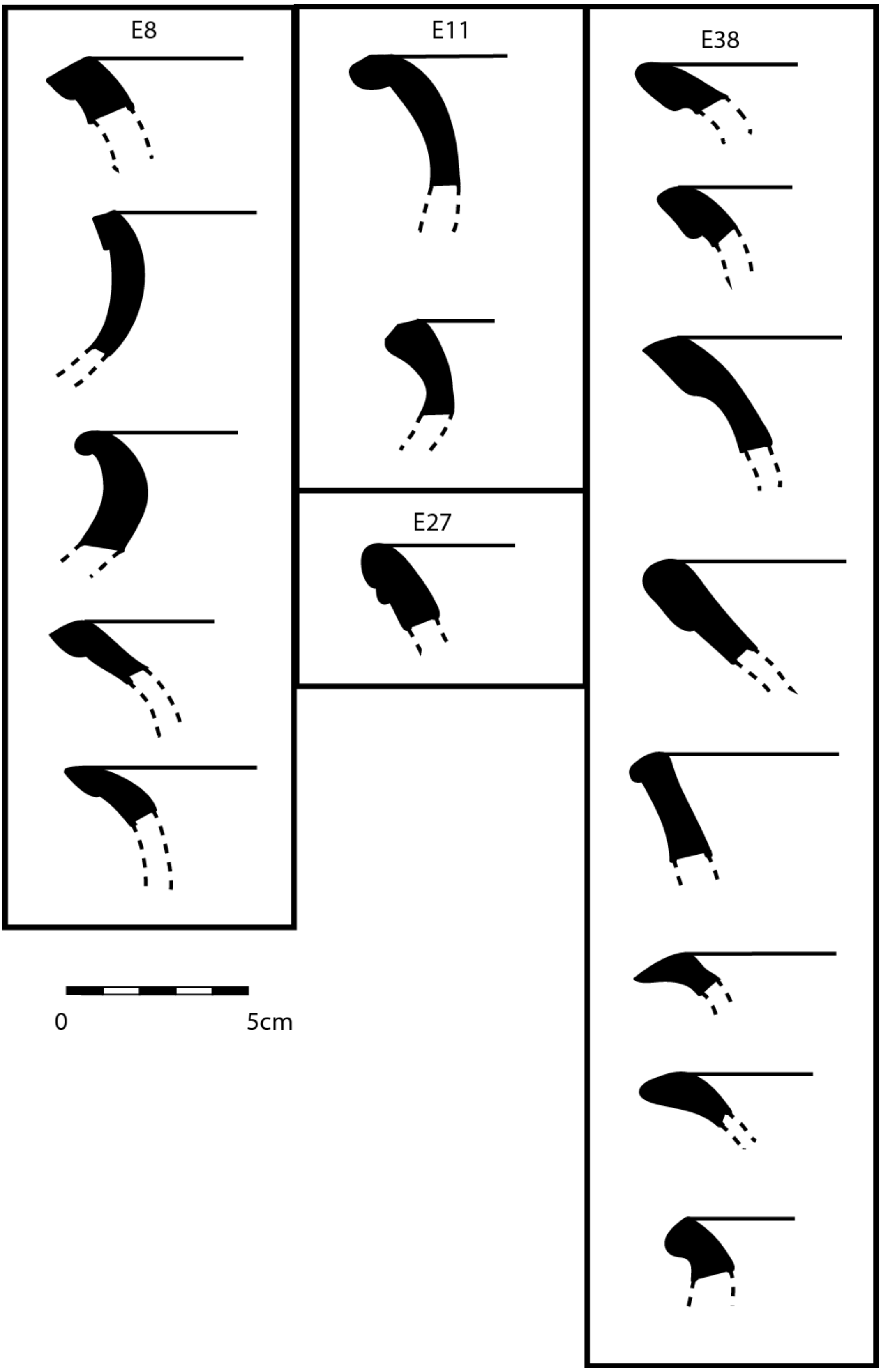


Figure A2. 5: EvGr5 rims (flared open, thickened and shaped)

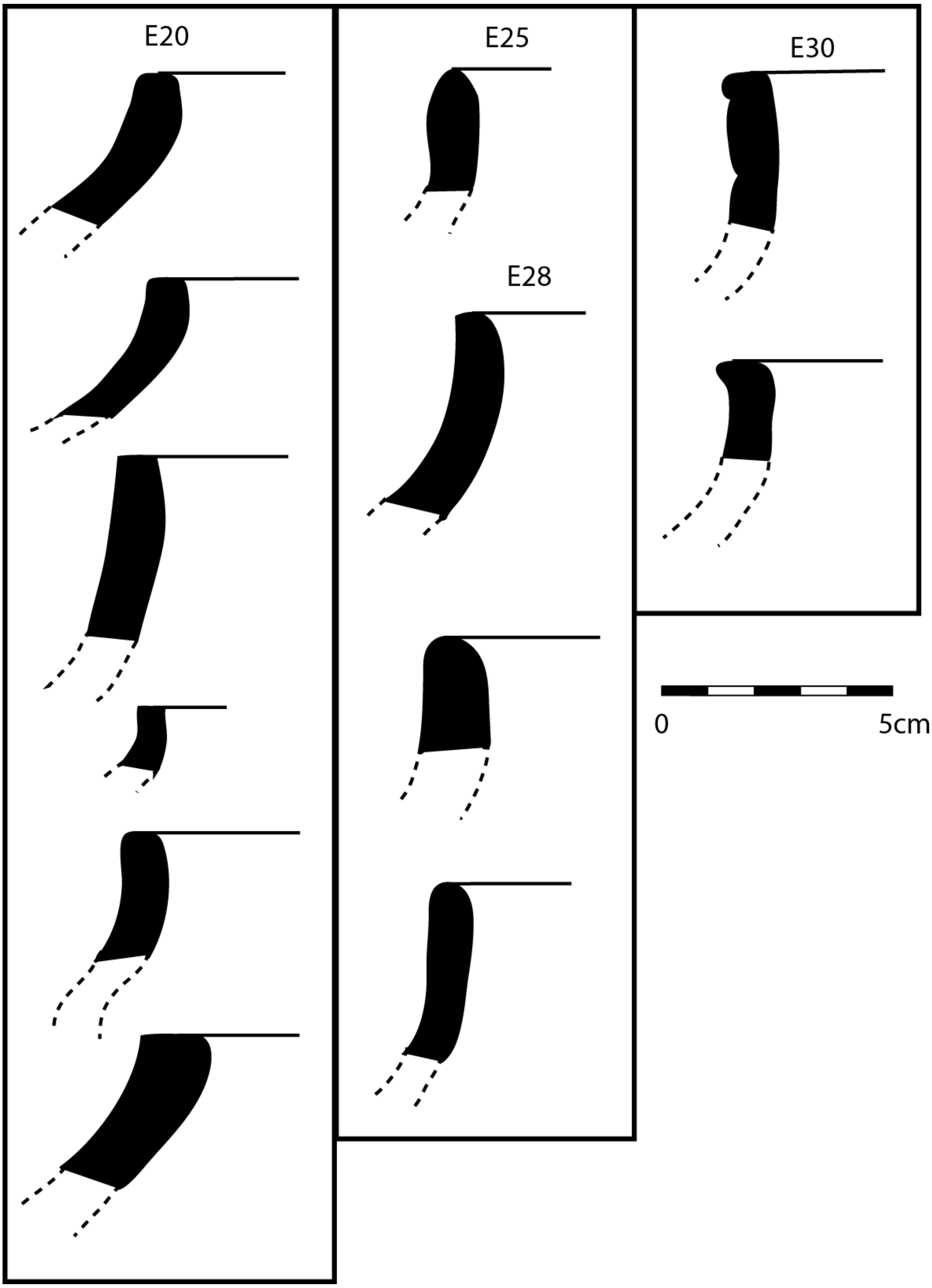


Figure A2. 6: EvGr6 rims (closed with everted in-turned collar)

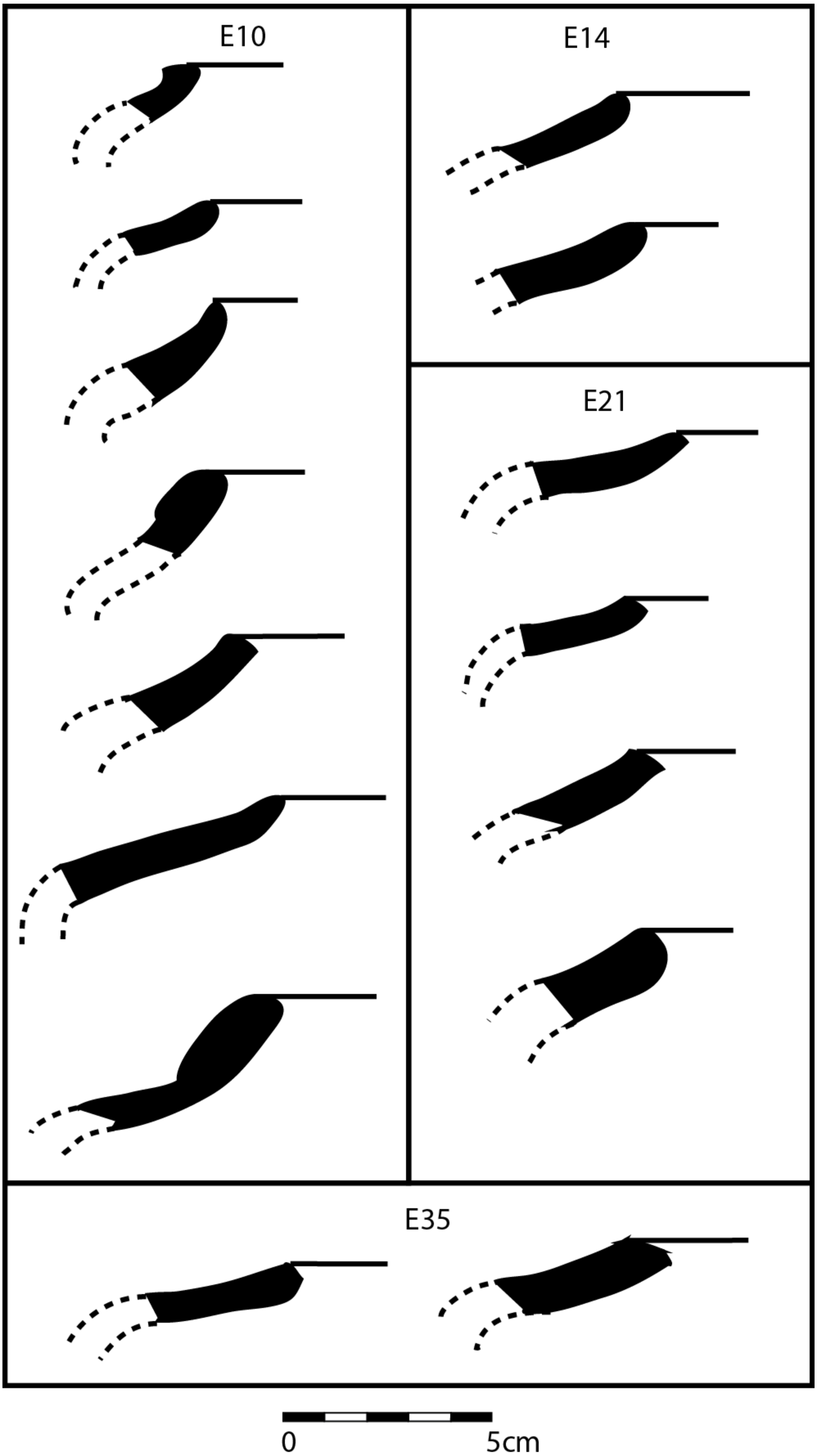


Figure A2. 7: EvGr7 rims (tightly closed with everted in-turned collar)

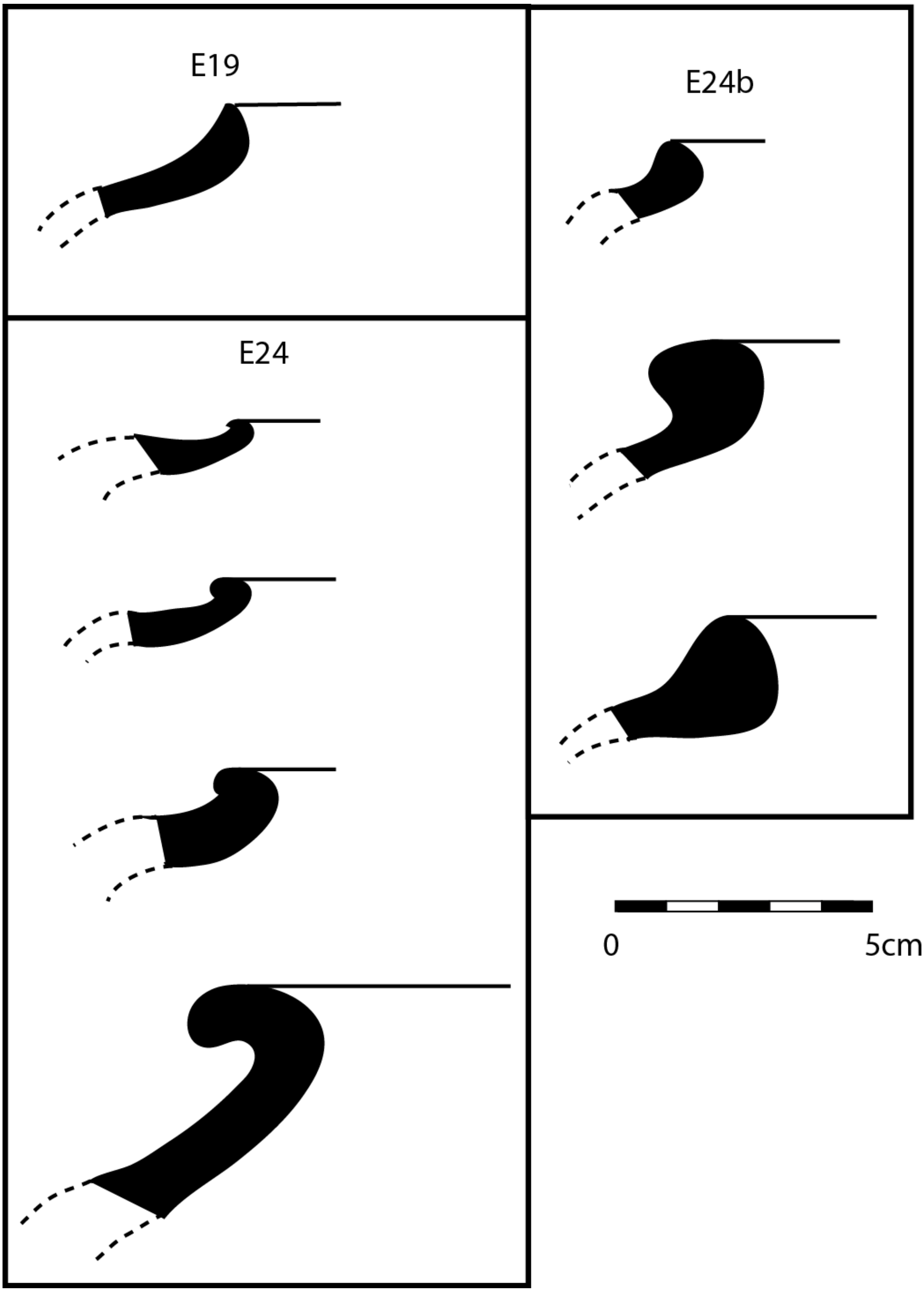


Figure A2. 8: EvGr8 rims (tightly closed with thickened, shaped, everted in-turned collar)

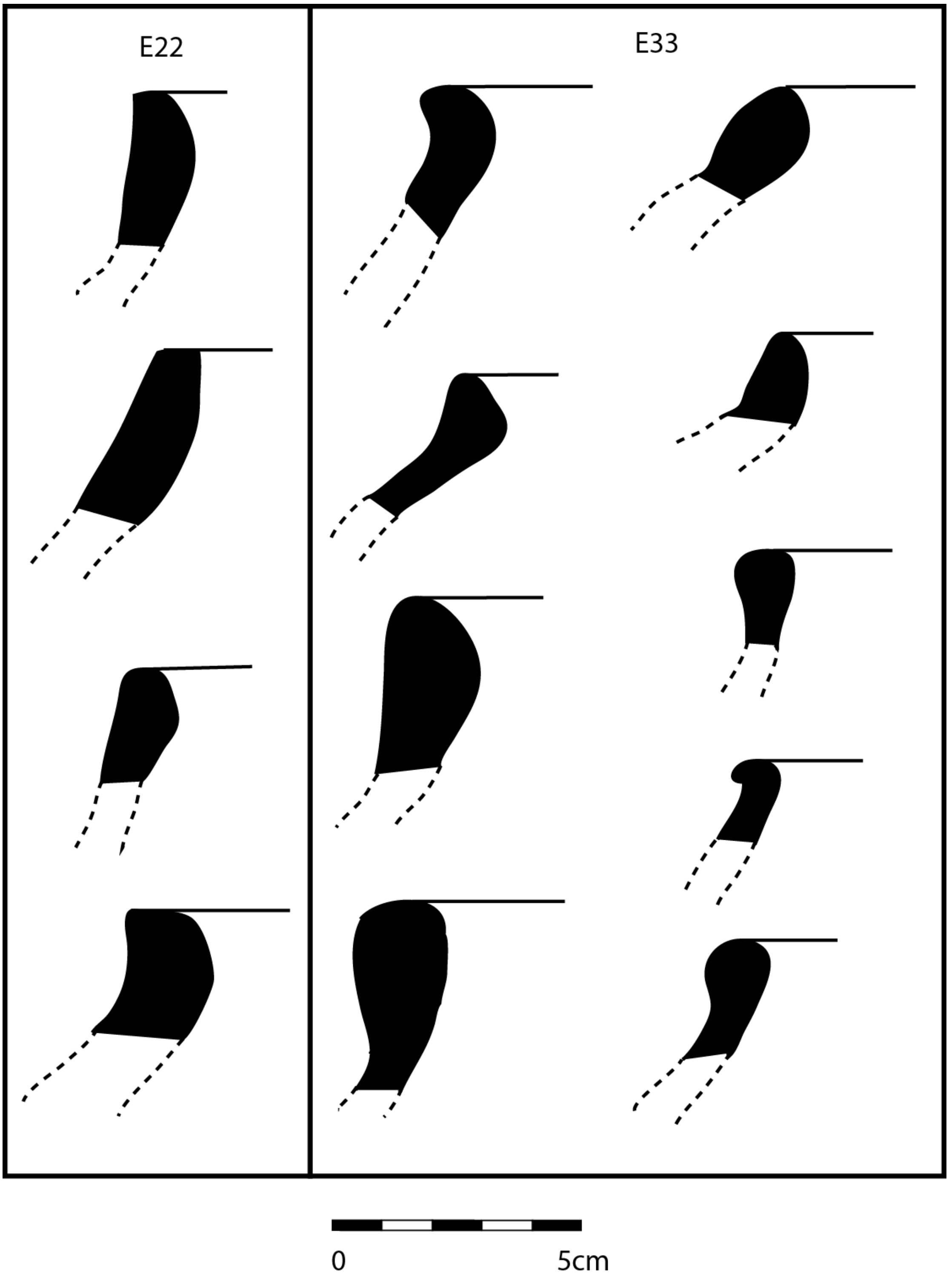


Figure A2. 9: EvGr9 rims (closed with everted, in-turned and thickened collar)

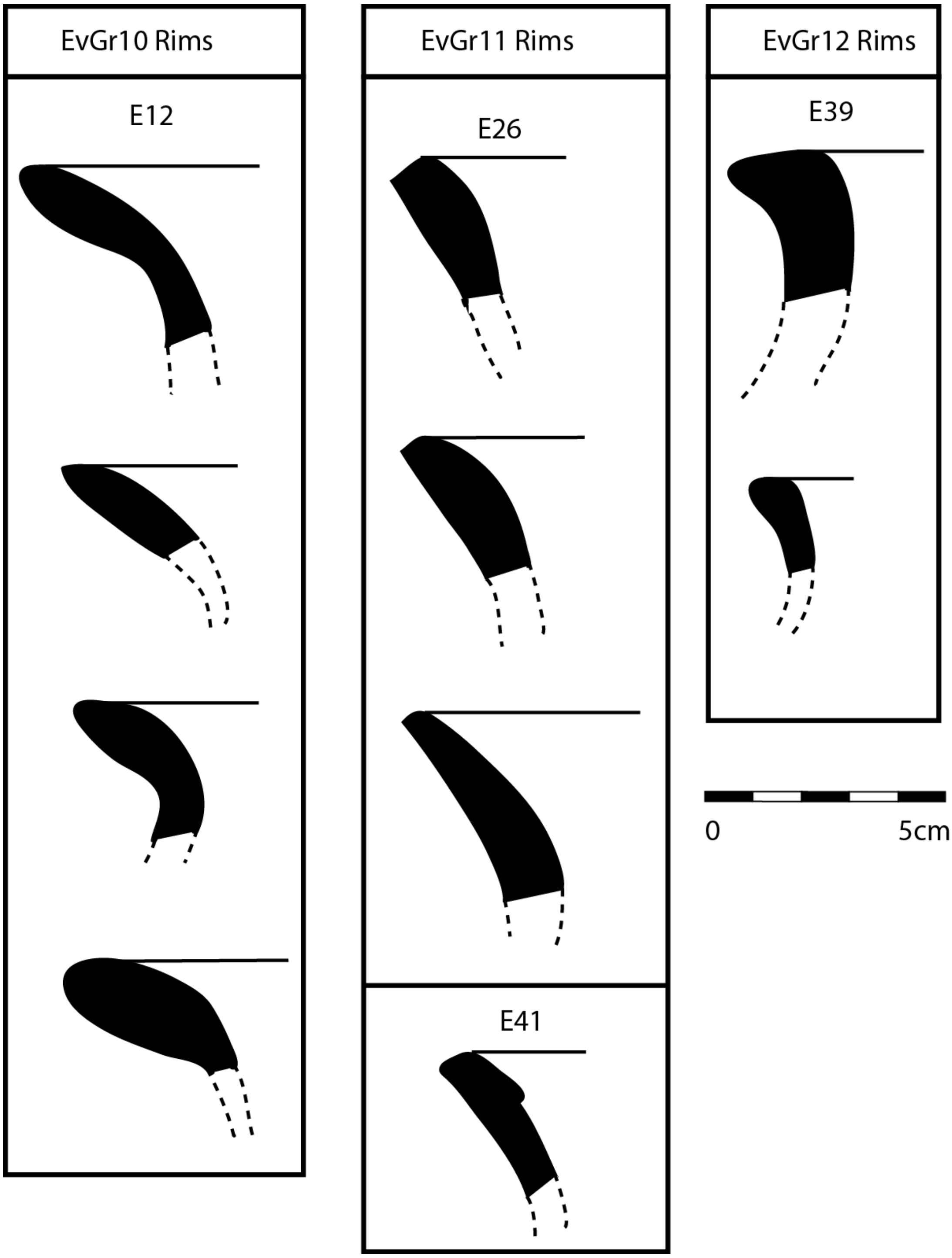


Figure A2. 10: EvGr10 rims (flared open, with thickened and tapered collar) EvGr11 rims (flared open with internally thickened and slightly tapered collar) and EvGr12 rims (in-turned, externally thickened collar)

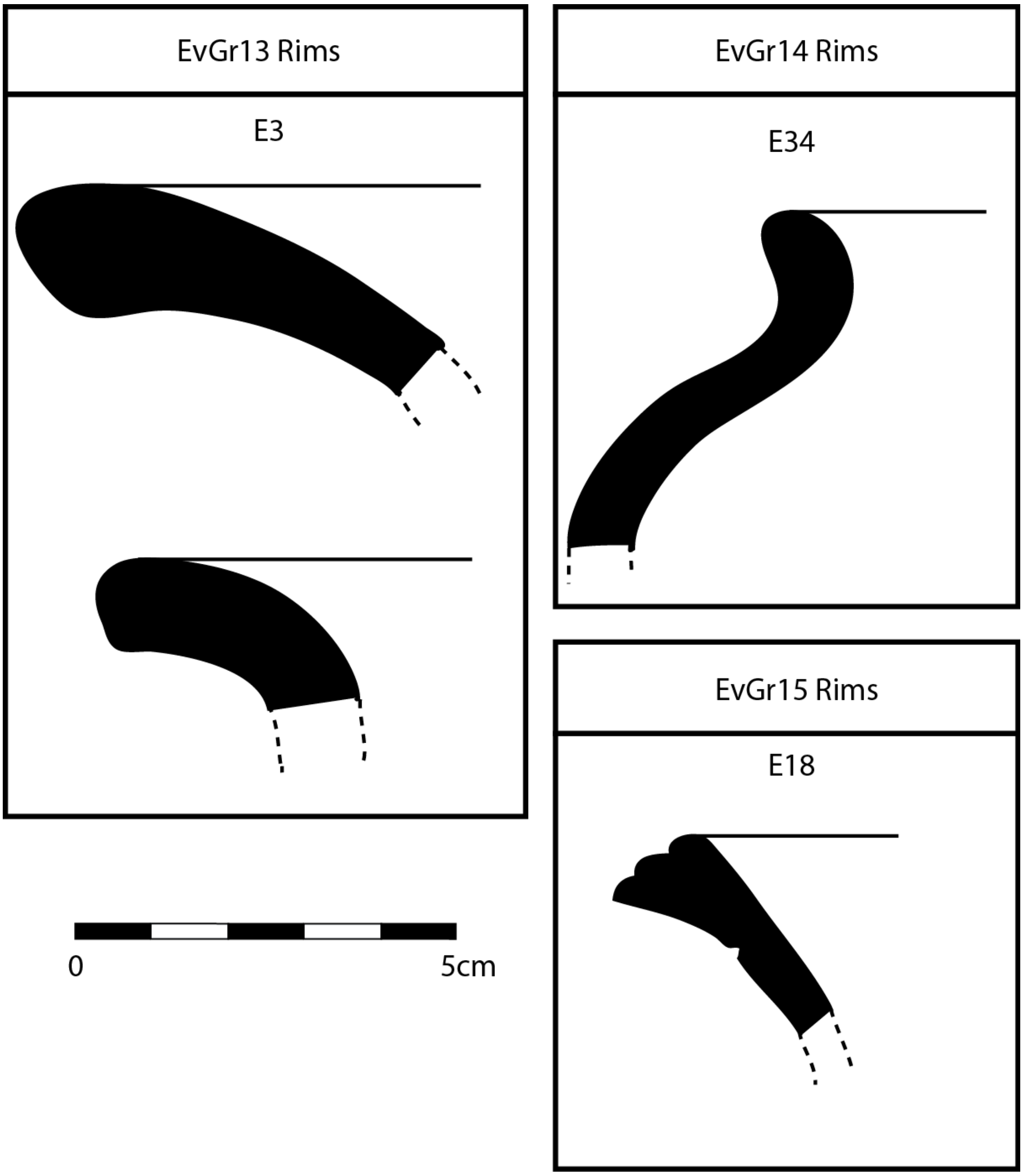


Figure A2. 11: EvGr13 rims (flared open with slightly thickened), EvGr14 rims (closed with everted, in-turned 'S' shaped collar) and EvGr15 rims (flared, thickened and shaped)

A2.2 Thickened Rim Profiles

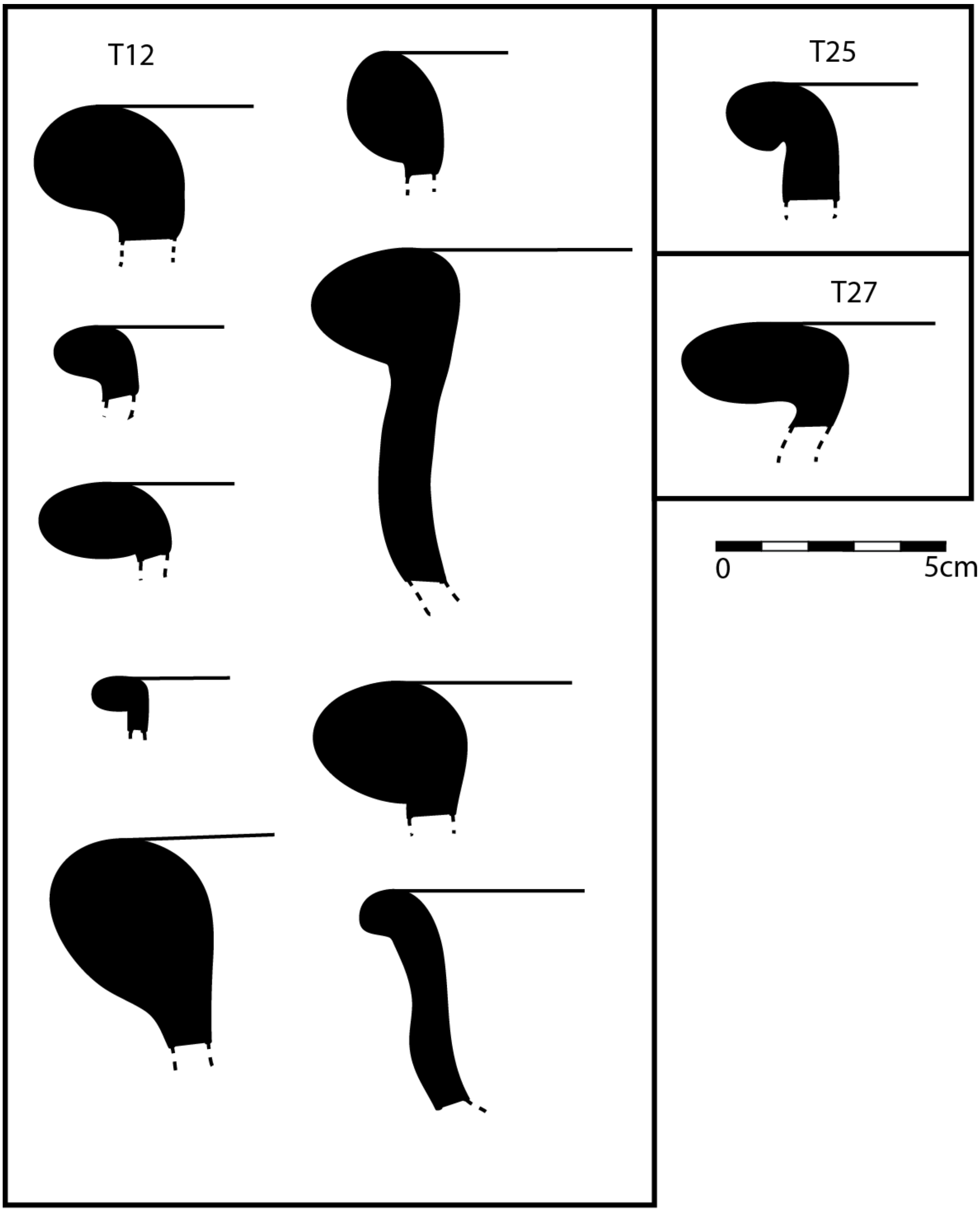


Figure A2. 12: ThGr1 rims (straight sided with heavy external thickening)

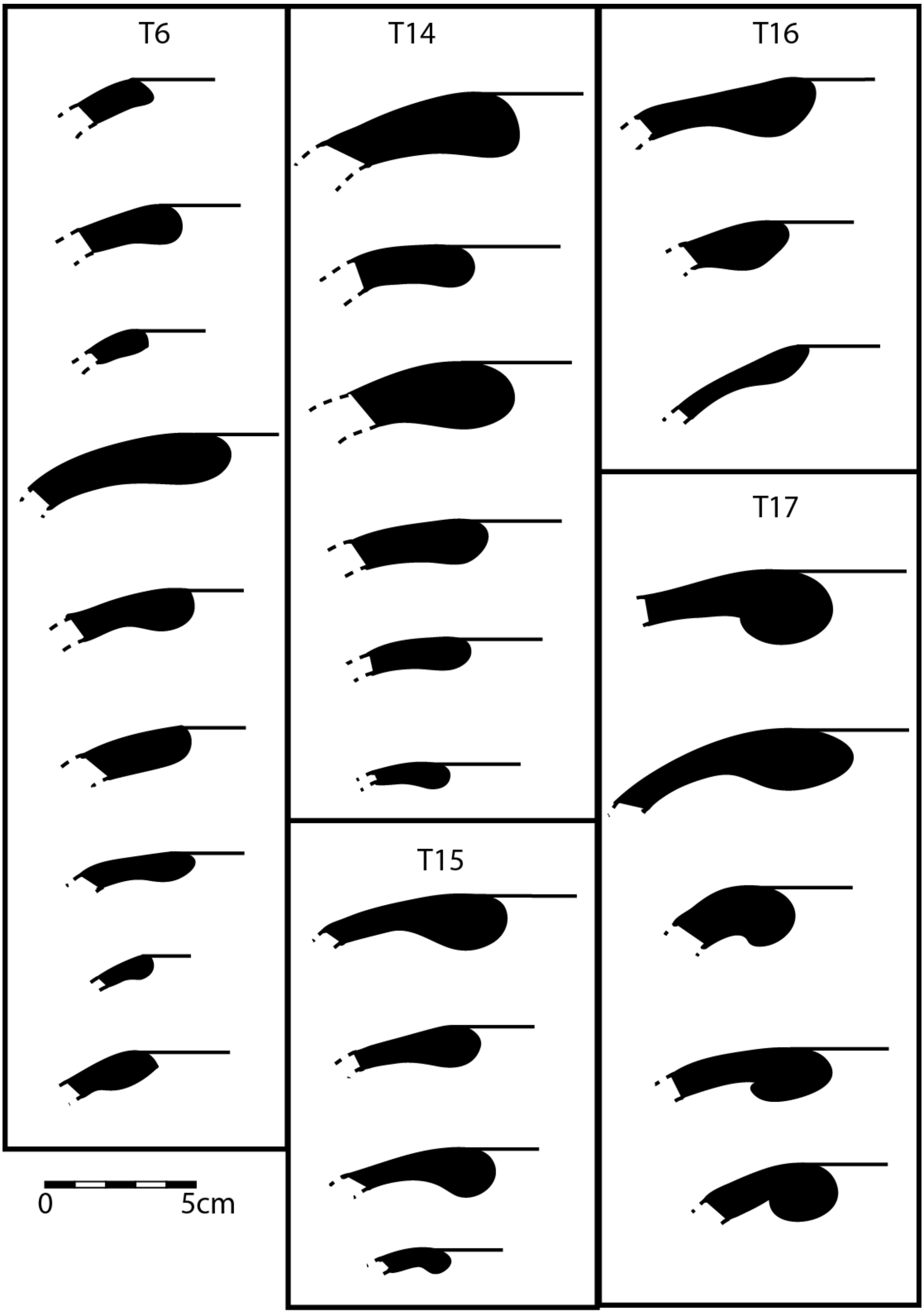


Figure A2. 13: ThGr2 rims (tightly closed with internal thickening)

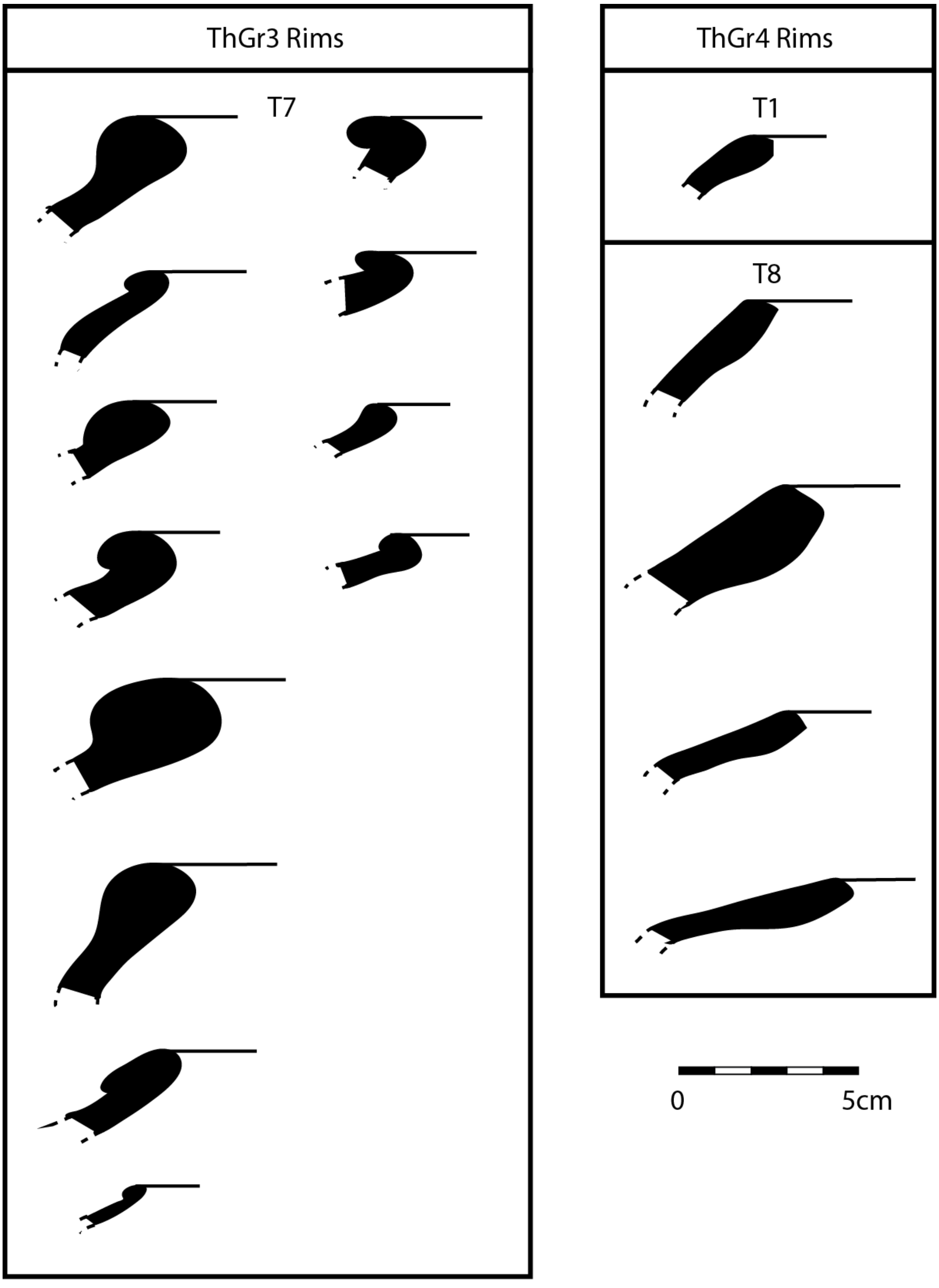


Figure A2. 14: ThGr3 rims (closed with rounded external thickening) and ThGr4 rims (closed and squared with light internal thickening)

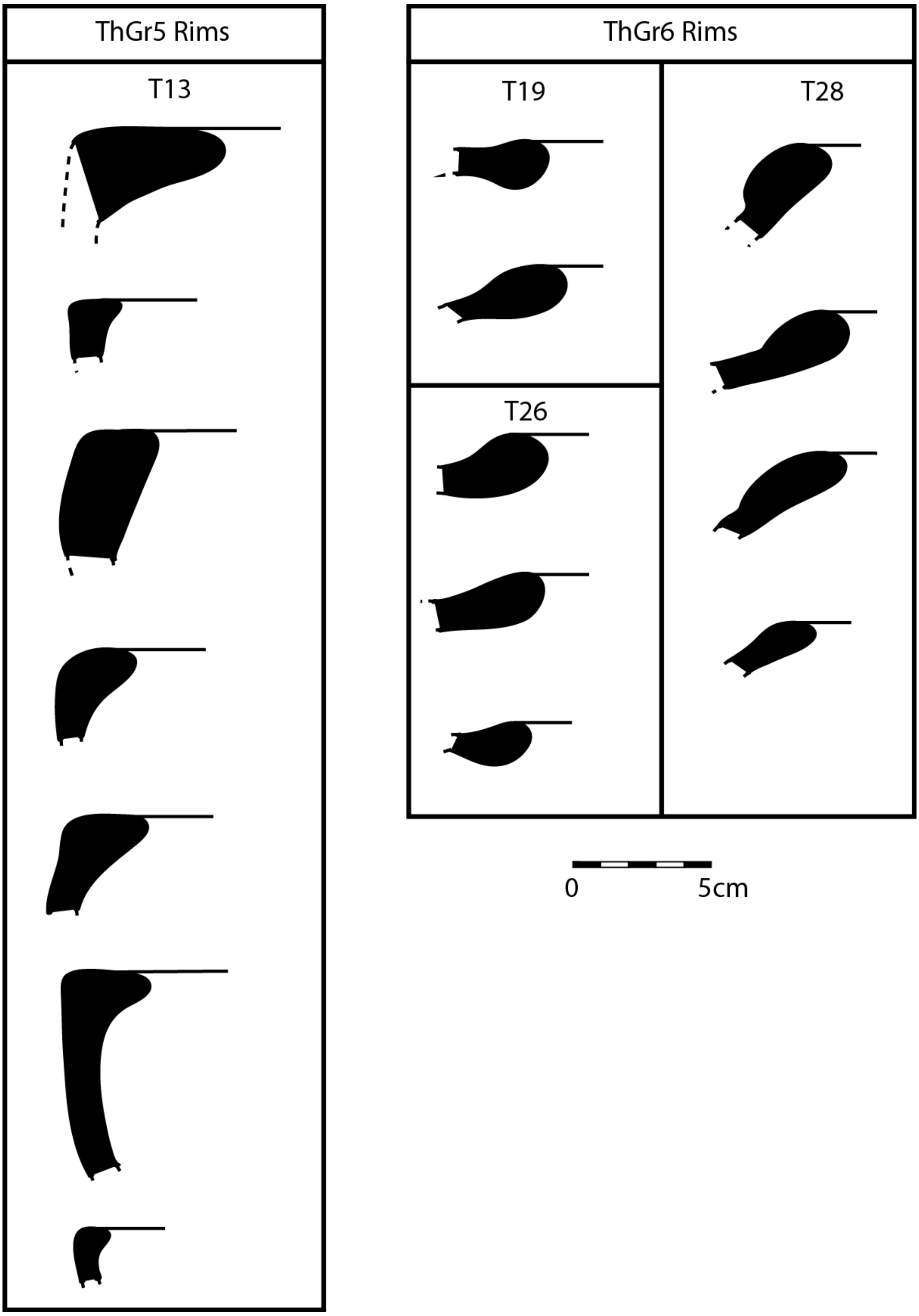


Figure A2. 15: ThGr5 rims (straight sided with flat top and internal thickening) and ThGr6 rims (closed and internally and externally thickened)

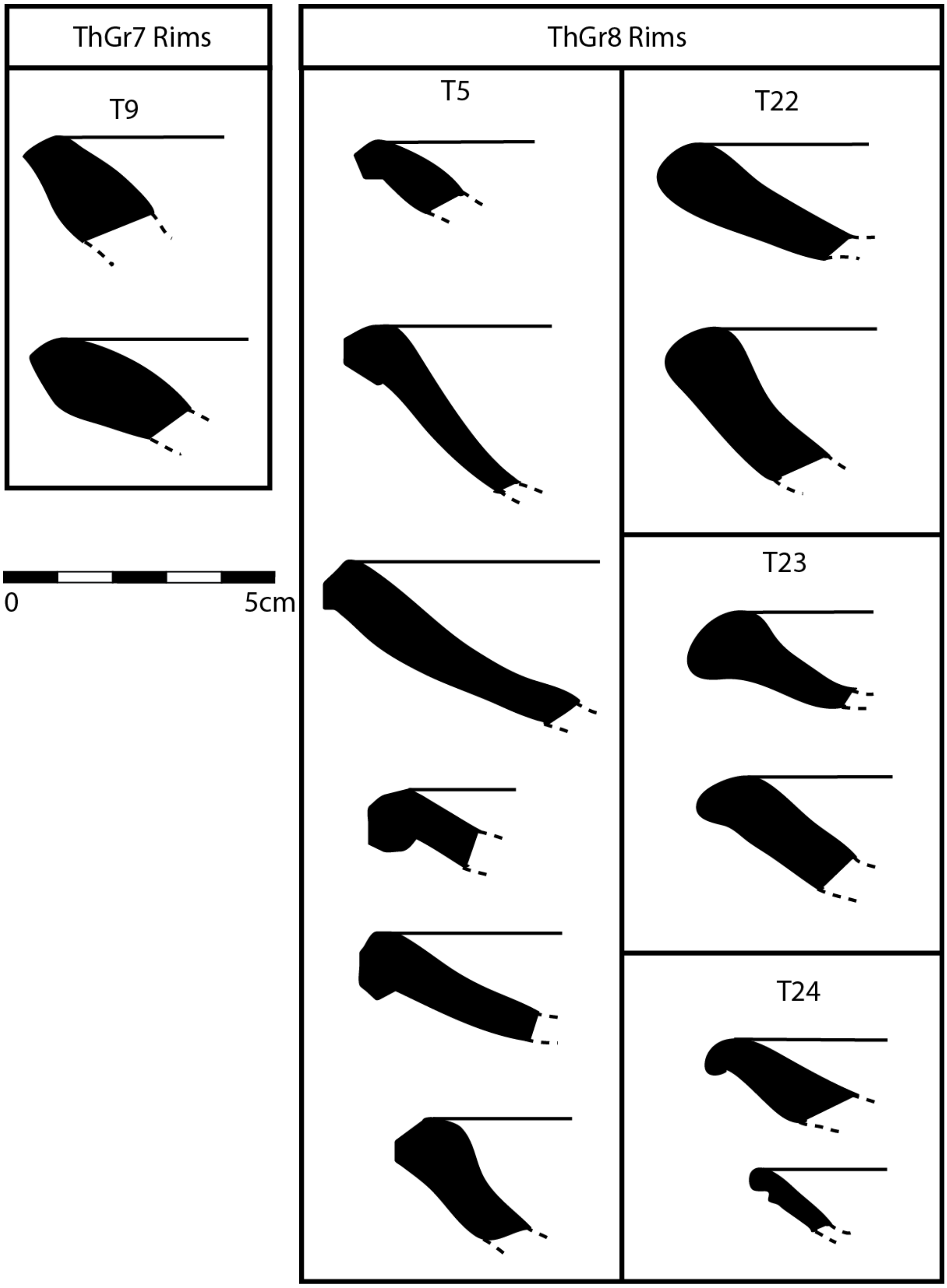


Figure A2. 16: ThGr7 rims (open, thickened and tapered) and ThGr8 rims (open and externally thickened)

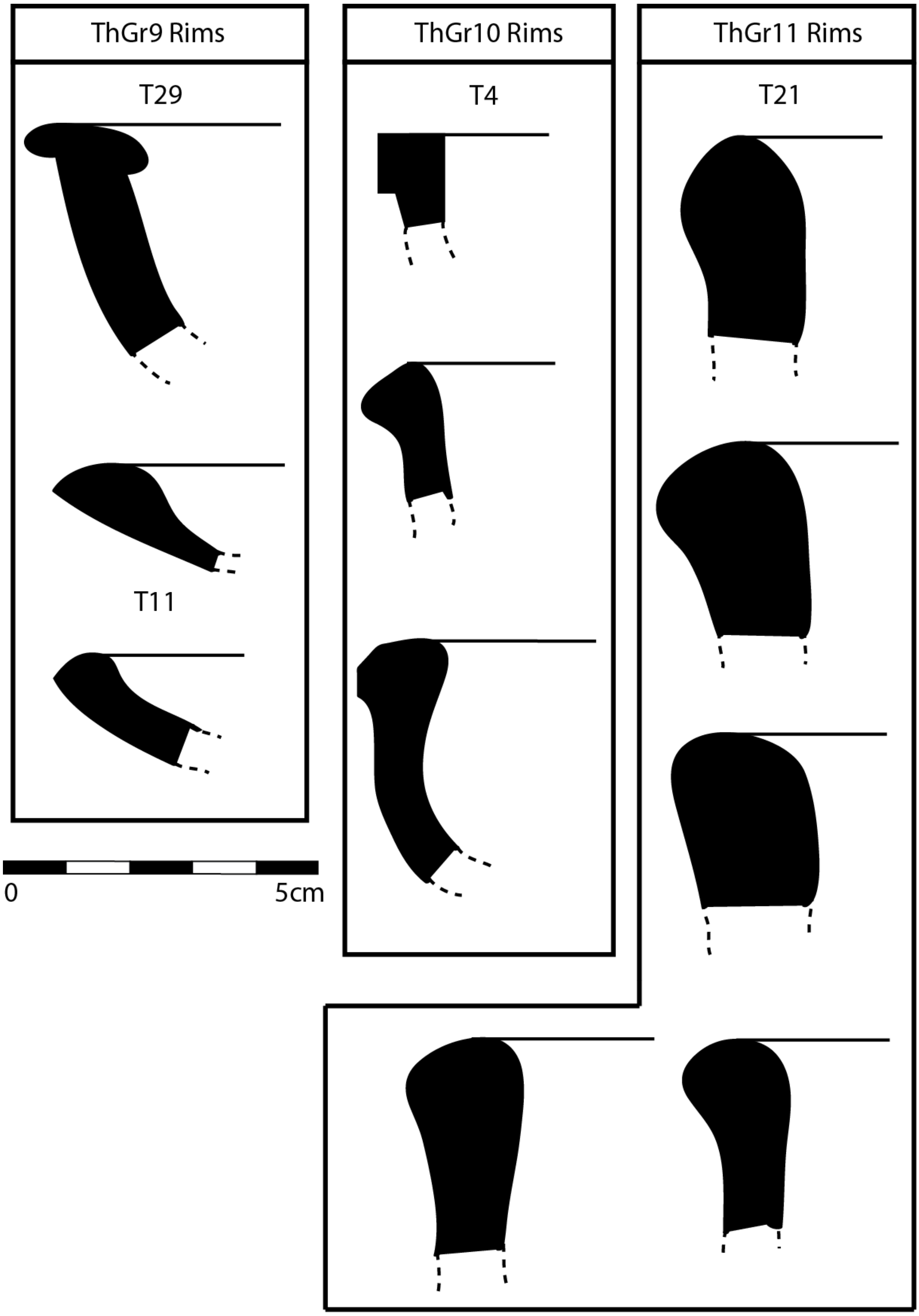


Figure A2. 17: ThGr9 rims (open and internally thickened), ThGr10 rims (straight sided, externally thickened and shaped), and ThGr11 rims (straight sided and heavily thickened)

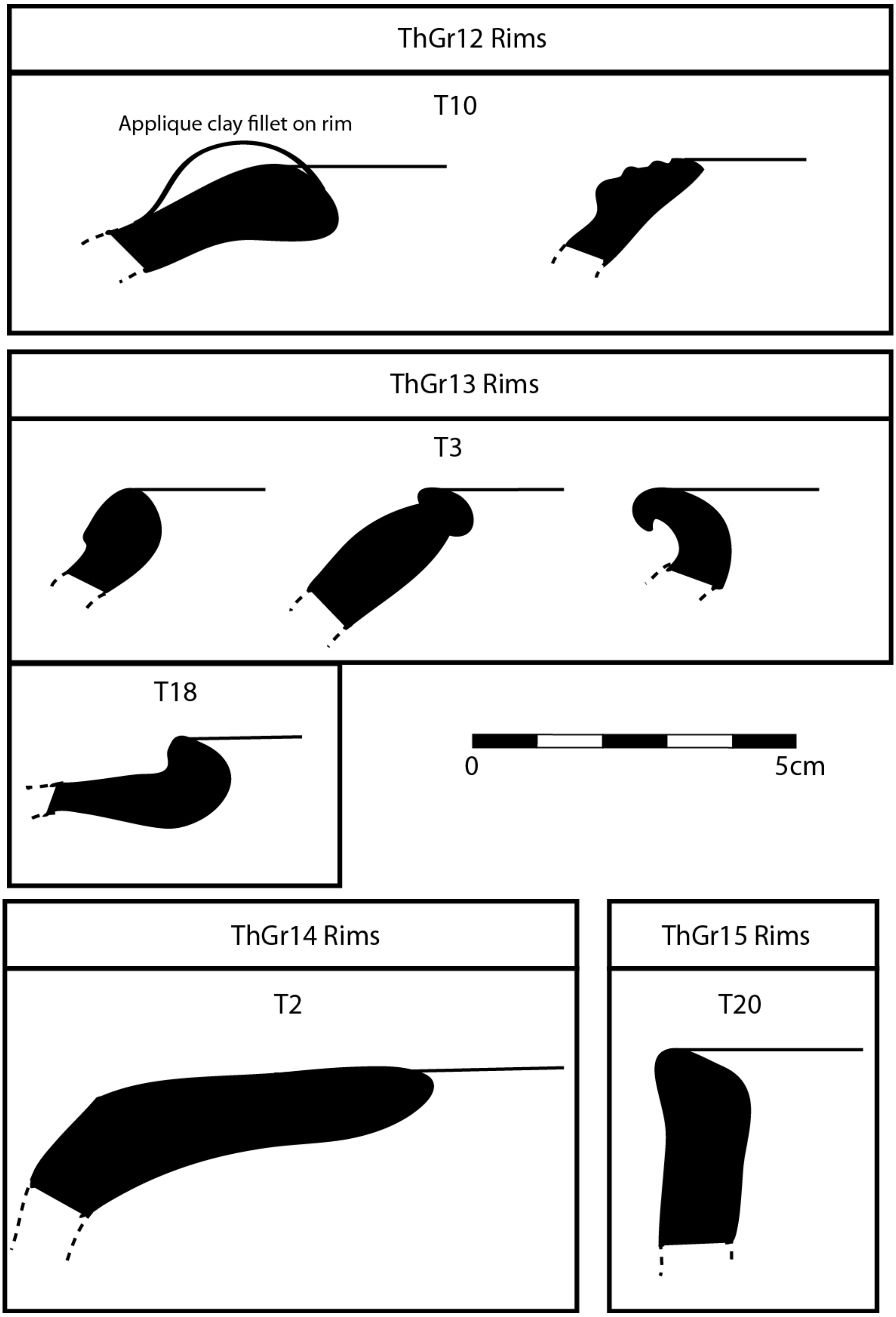


Figure A2. 18: ThGr12 rims (closed with applied clay designs), ThGr13 rims (closed, thickened and shaped externally), ThGr14 rims (closed, thickened and heavily elongated) and ThGr15 rims (straight sided, with internal thickening and asymmetric taper)

A2.3 Simple Rim Profiles

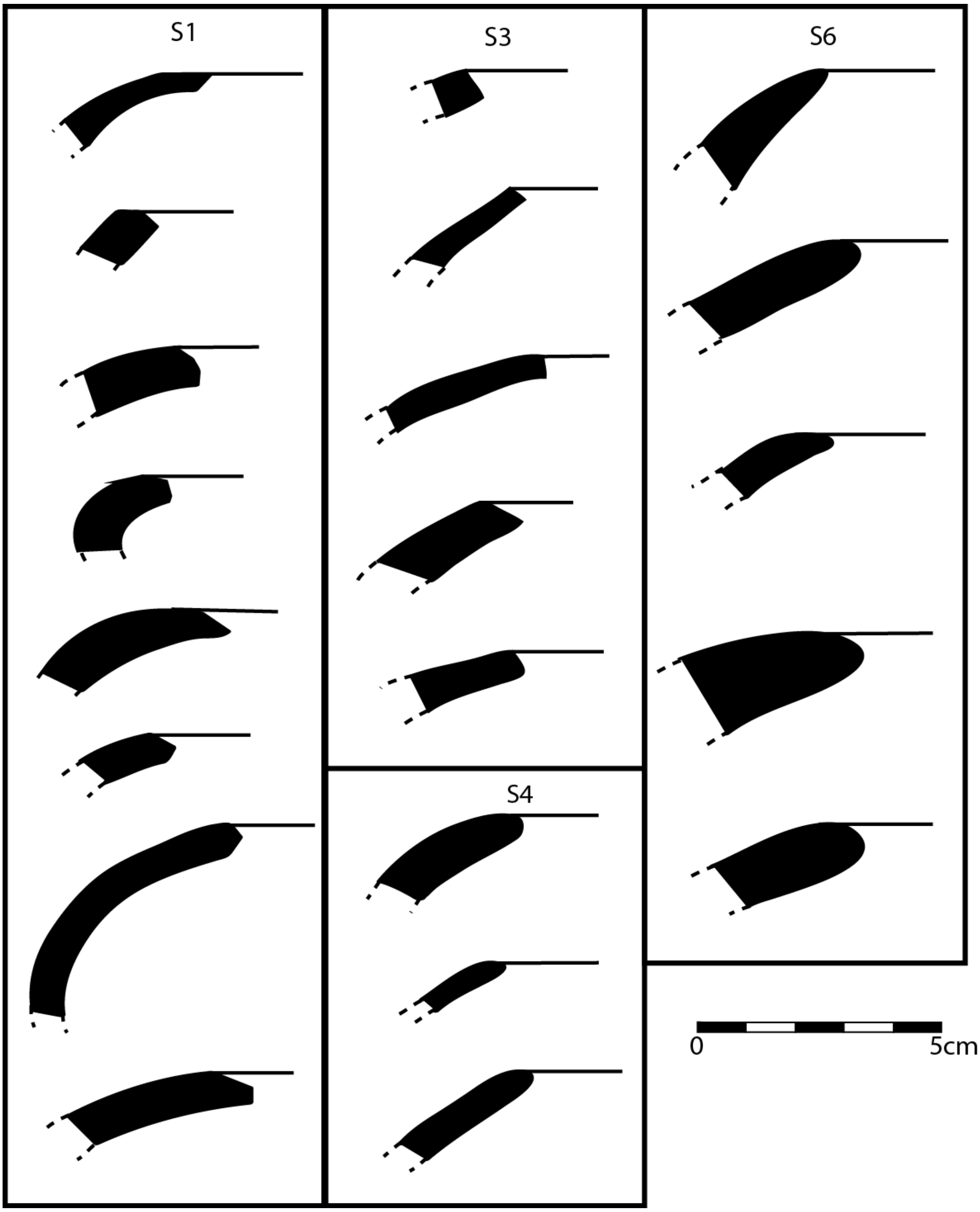


Figure A2. 19: SGr1 rims (closed, un-thickened and un-everted)

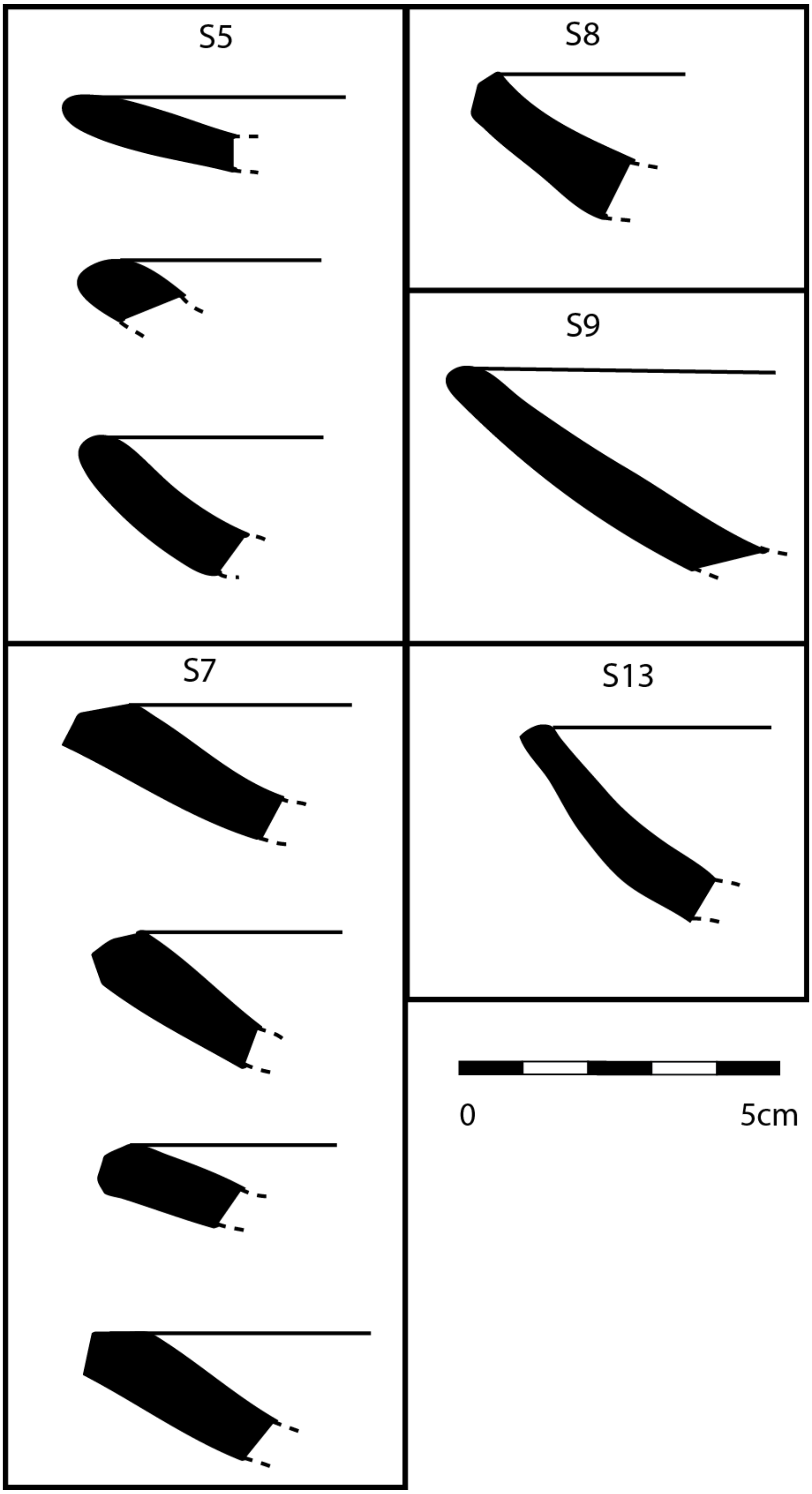


Figure A2. 20: SGr2 rims (open, un-thickened and un-everted)

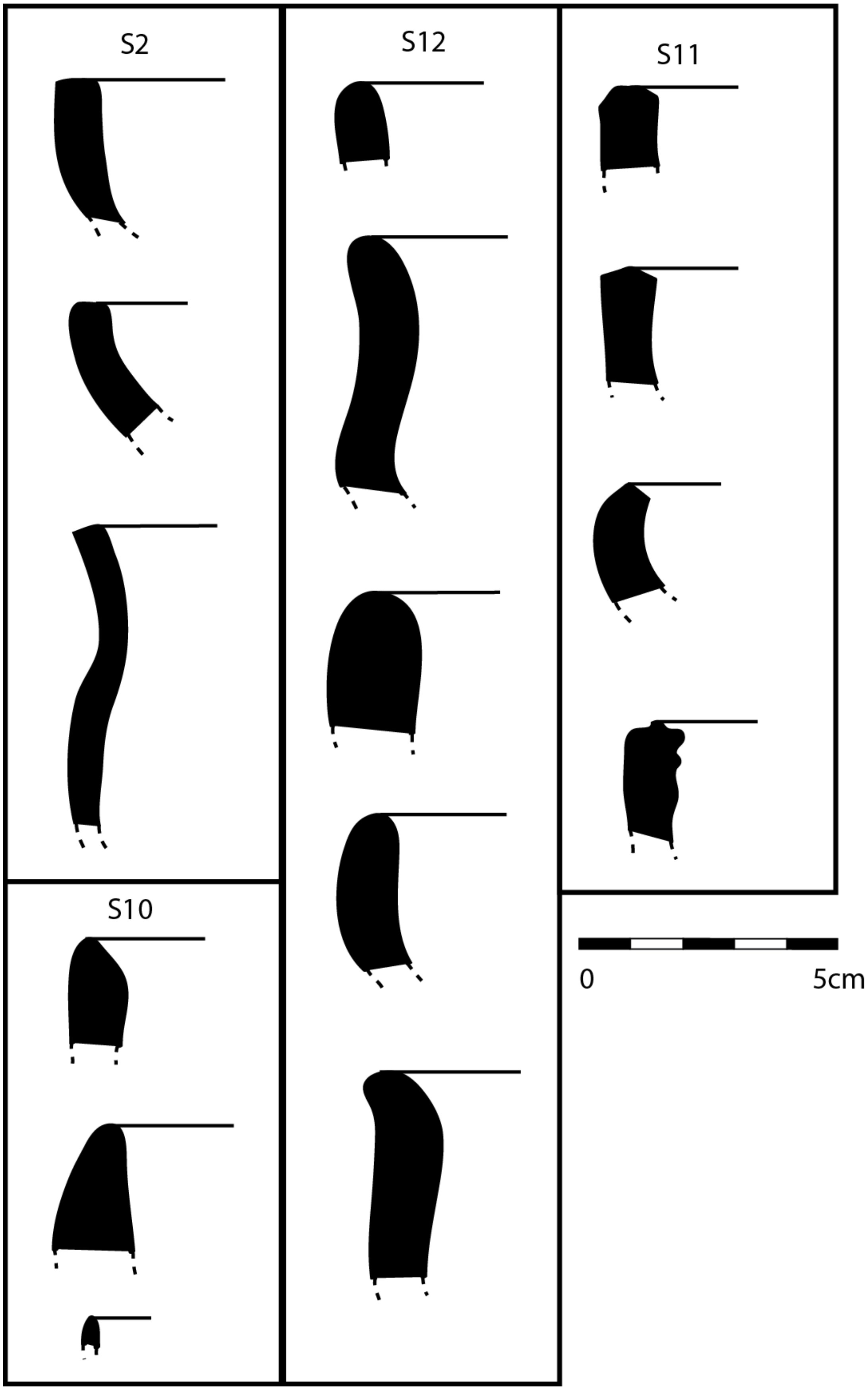


Figure A2. 21: SGr3 Rims (straight sided un-thickened and un-everted)

Appendix A3: Fieldwork Recording

SITE RECORD FORM

Site number:

Site name: Bukasa - 1

Date: 11/11/10

District: Kalangala

Island (sub-county): Bukasa Island

Location:

Map No:

Grid ref:

Latitude/Longitude: 00°28.497S ; 032°28.744E

Altitude: 1219m

Land use/vegetation: Farmland - banana, casava, sweet potato

Surface conditions (visibility, wet/dry, disturbance): disturbed by agriculture

Site position (relative to slope): upper slope close to hilltop

Site Aspect (N, S, E, W): 280°

Site area (measured/estimated): 50m²

Finds density: 12

Site type (open, rockshelter, cave): open

Site activity (settlement, smelting): settlement

Cultural characteristics (stone age, EIA, LIA): EIA - LIA

Distance to lake (estimated): 200 - 300m

Proximity to religious sites: -

Artefacts (tick and mention any samples collected):

Pottery ✓ decorated / diagnostic taken

Lithics

Metal

Bone ✓ 2 Ovicaprine longbone fragments not taken

Glass

Shell ✓ broken bangle (taken)

Wood

Other

Description of site: From landing site at Nakiwanga walk 3km to ~~the~~ Buwazi school. Pass the school + continue c. 800m - 1km, there are two wooden buildings on the left with farmland on both sides of the road. The site extends into the farmland on both the left and right.

Significance of materials and potential for further research: Medium significance due to unique decorative pattern but low potential as density of materials is low + all sourced in highly disturbed farmland.

Recorder: SA

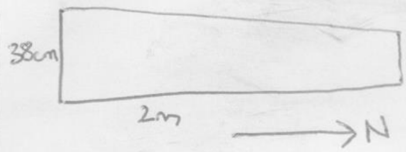
Figure A3. 1: Example of survey site record form

Site	Date	Unit	Context/level
BMB3 11	17/1/11	A	001
Max width	**Max length**	**Max depth**	
2m	2m	38cm	

Context type: Fill

Deposit
Colour
Compaction
Composition
Inclusions
(organic/inorganic)

Very compact, brown clayey silt ~~at~~ top of trench - topped by grass + containing many fine roots + insect burrows



Feature
Cut/fill
Shape (sketch plan)
Size
Orientation and incline

Interpretation and artefacts found
Lots of small + few slightly larger pieces of pottery. Very disturbed layer due to plant + insect activity

Method of excavation Hoe + trowel Not sieved - clay too dense

Stratigraphy
Same as: —
Under: —
Over: 002
Cuts: —
Cut by: —

Sequence (Harris Matrix sketch)
001
002

Samples?
—

Plans	Photos	Levels	Sketch
on attached graph paper	—	See plan	—

Recorded by/checked by SA
Date 17/1/11

Figure A3. 2: Example of excavated context record form

	GPS		Decimal		Universal Transverse Mercetor	
	S (lat)	E (long)	S	E	E	S
Bubembe-2	00-26.602	032-20.118	-0.60056	32.36611	452953.25	9950964.4
Bubembe-12	00-27.443	032-20.231	-0.57306	32.3975	426079.02	9949067.08
Bubembe-11	00-26.970	032-20.240	-0.70278	32.4	426130.9	9950142.03
Bubembe-10	00-26.937	032-20.278	-0.69361	32.41056	426147.64	9950165.97
Bubembe-9	00-26.871	032-20.388	-0.67528	32.44111	426156.13	9950205.34
Bubembe-8	00-26.830	032-20.414	-0.66389	32.44833	426233.65	9950230.73
Bubembe-6	00-26.745	032-20.422	-0.64028	32.45056	426275.37	9950522.38
Bubembe-5	00-27.432	032-20.435	-0.57	32.45417	426362.7	9949276.09
Bubembe-7	00-26.726	032-20.492	-0.635	32.47	426392.12	9950502.39
Bubembe-3b	00-27.017	032-20.626	-0.45472	32.50722	426842.21	9950103.05
Bubembe-3	00-26.798	032-20.674	-0.655	32.52056	426889.05	9950352.47
Bubembe-4	00-27.218	032-20.715	-0.51056	32.53194	427002.9	9949861.76
Bubembe-1	00-26.443	032-20.864	-0.55639	32.57333	427698.57	9951066.8
Bukasa-36	00-29.147	032-27.364	-0.52417	32.55111	439624.43	9945851.53
Bukasa-35	00-29.040	032-27.948	-0.49444	32.71333	440543.58	9946122.39
Bukasa-34	00-28.947	032-28.182	-0.72972	32.51722	440983.9	9946260.41
Bukasa-39	00-28.638	032-28.531	-0.64389	32.61417	441728.55	9947135.91
Bukasa-40	00-28.739	032-28.541	-0.67194	32.61694	441786.91	9946788.3
Bukasa-1	00-28.497	032-28.744	-0.60472	32.67333	442077.08	9947410.47
Bukasa-2	00-28.422	032-29.349	-0.58389	32.58028	443360.92	9947690.66
Bukasa-3	00-27.233	032-29.765	-0.51472	32.69583	443772.99	9949505.88
Bukasa-9	00-26.507	032-29.792	-0.57417	32.70333	443910.13	9950927.02
Bukasa-8	00-26.520	032-29.891	-0.57778	32.73083	444124.96	9950817.66
Bukasa-15	00-26.271	032-29.904	-0.50861	32.73444	444192.69	9951491.39
Bukasa-4	00-26.899	032-29.937	-0.68306	32.74361	444195.81	9950052.26
Bukasa-14	00-26.294	032-29.961	-0.515	32.75028	444259.67	9951424.4
Bukasa-11	00-26.595	032-29.963	-0.59861	32.75083	444266.42	9950588.4
Bukasa-10	00-26.454	032-29.985	-0.55944	32.75694	444320.31	9950939.24
Bukasa-37	00-26.984	032-29.986	-0.70667	32.75722	444335.12	9949880.53
Bukasa-7	00-26.518	032-29.991	-0.57722	32.75861	444367.11	9950636.61
Bukasa-6	00-26.659	032-29.995	-0.61639	32.75972	444368.47	9950511.59
Bukasa-38	00-27.117	032-30.000	-0.4825	32.5	444385.63	9949637.82
Bukasa-13	00-26.337	032-30.012	-0.52694	32.50333	444392.64	9951165.58
Bukasa-5	00-26.757	032-30.014	-0.64361	32.50389	444393.23	9950454.98
Bukasa-20	00-26.216	032-30.040	-0.49333	32.51111	444454.89	9951412.75
Bukasa-17	00-26.370	032-30.080	-0.53611	32.52222	444473.51	9951210.02
Bukasa-19	00-26.282	032-30.097	-0.51167	32.52694	444475.39	9951267.15
Bukasa-18	00-26.327	032-30.113	-0.52417	32.53139	444525.88	9951140.46
Bukasa-12	00-26.448	032-30.117	-0.55778	32.5325	444531.84	9950996.34
Bukasa-21	00-26.265	032-30.122	-0.50694	32.53389	444558.9	9951203.16
Bukasa-16	00-26.658	032-30.153	-0.61611	32.5425	444604.11	9950480.53
Bukasa-22	00-26.128	032-30.229	-0.46889	32.56361	444644.66	9951324.06

Figure A3. 3: Fieldwork site coordinates part 1

	GPS		Decimal		Universal Transverse Mercetor	
	S (lat)	E (long)	S	E	E	S
Bukasa-24	00-25.926	032-30.285	-0.67389	32.57917	444838.29	9951826.6
Bukasa-23	00-26.168	032-30.386	-0.48	32.60722	445177.94	9951544.93
Bukasa-33	00-25.307	032-30.589	-0.50194	32.66361	445465.28	9953194.09
Bukasa-25	00-25.434	032-30.624	-0.53722	32.67333	445530.84	9952869.39
Bukasa-28	00-25.108	032-30.807	-0.44667	32.72417	445797.18	9953588.09
Bukasa-27	00-25.185	032-30.845	-0.46806	32.73472	445921.06	9953137.45
Bukasa-26	00-25.352	032-30.883	-0.51444	32.74528	445980.36	9953053.77
Bukasa-30	00-23.033	032-31.026	-0.3925	32.52389	446187.17	9957631.62
Bukasa-29	00-22.793	032-31.099	-0.58694	32.54417	446313.83	9958027.07
Bukasa-31	00-23.373	032-31.349	-0.48694	32.61361	446866.21	9956881.61
Bukasa-32	00-23.313	032-31-473	-0.47028	32.64806	447167.21	9956979.39
Bubeke-6	00-19.698	032-34.752	-0.51056	32.77556	452818.92	9964256.47
Bubeke-8	00-19.254	032-34.835	-0.38722	32.79861	453020.46	9963402.91
Bubeke-7	00-19.392	032-34.928	-0.42556	32.82444	453136.16	9963670.98
Bubeke-5	00-19.380	032-35.073	-0.42222	32.60361	453480.43	9963673.7
Bubeke-4	00-19.431	032-35.179	-0.43639	32.63306	453620.7	9963823.51
Bubeke-1	00-19.546	032-36.078	-0.46833	32.62167	455012.69	9963940.65
Bubeke-3	00-19.816	032-36.108	-0.54333	32.63	455096.53	99642830.9
Bubeke-2	00-19.621	032-36.243	-0.48917	32.6675	455365.04	9964091.71

Figure A3. 4: Fieldwork site coordinates part 2

Appendix A4: Surface Survey Ceramics Principal Components Analysis Tables

	Undecorated	KPR	Stylus	cord wrapped paddle	Comb	TGR	CWR	Grass
Undecorated	1.000	-.381	-.241	-.161	.004	-.309	-.085	-.164
KPR	-.381	1.000	-.365	-.154	-.229	.177	-.488	-.116
Stylus	-.241	-.365	1.000	-.021	-.088	.010	.066	-.067
cord wrapped paddle	-.161	-.154	-.021	1.000	-.141	-.162	-.130	.846
Comb	.004	-.229	-.088	-.141	1.000	.001	-.020	-.133
TGR	-.309	.177	.010	-.162	.001	1.000	-.261	-.156
CWR	-.085	-.488	.066	-.130	-.020	-.261	1.000	-.144
Grass	-.164	-.116	-.067	.846	-.133	-.156	-.144	1.000

Table A4. 1: Correlation matrix for decorative attributes from Bubembe, Bukasa and Bubeke surface survey assemblages, highlighting the co-occurrence of attributes within assemblages

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.986	24.828	24.828	1.986	24.828	24.828	1.962	24.522	24.522
2	1.839	22.988	47.815	1.839	22.988	47.815	1.664	20.803	45.325
3	1.351	16.882	64.697	1.351	16.882	64.697	1.484	18.552	63.877
4	1.038	12.974	77.671	1.038	12.974	77.671	1.104	13.794	77.671
5	.905	11.310	88.982						
6	.697	8.715	97.697						
7	.152	1.900	99.597						
8	.032	.403	100.000						

Table A4. 2: Explanation of variance for decorative principal components from Bubembe, Bukasa and Bubeke surface assemblages

	Jar	Bowl	Open-collared bowl	Collared Jar	EvGr1	EvGr3	EvGr4	EvGr9	ThGr3	SGr1	RD2	RD7	RT1	RT2	RT6
Jar	1.00	-.722	-.228	-.156	-.296	.505	.636	-.006	-.481	-.241	-.030	-.182	-.069	.625	-.182
Bowl	-.722	1.00	-.084	.096	.010	-.366	-.475	-.033	.632	.316	.154	.333	.103	-.402	.400
Open-collared bowl	-.228	-.084	1.00	-.122	.920	-.105	-.160	-.062	-.010	-.108	-.139	-.068	.360	-.258	-.153
Collared Jar	-.156	.096	-.122	1.00	-.139	-.073	-.062	.642	.147	.113	-.063	.091	-.196	-.173	.013
EvGr1	-.296	.010	.920	-.139	1.00	-.112	-.182	-.107	.043	-.088	-.121	-.090	.341	-.275	-.159
EvGr3	.505	-.366	-.105	-.073	-.112	1.00	.051	.010	-.422	-.123	.063	-.212	.405	.162	-.226
EvGr4	.636	-.475	-.160	-.062	-.182	.051	1.00	.012	-.347	-.130	.011	-.071	-.174	.516	-.028
EvGr9	-.006	-.033	-.062	.642	-.107	.010	.012	1.00	.133	-.074	-.055	.161	-.127	-.176	.039
ThGr3	-.481	.632	-.010	.147	.043	-.422	-.347	.133	1.00	-.140	-.287	.585	-.285	-.242	.523
SGr1	-.241	.316	-.108	.113	-.088	-.123	-.130	-.074	-.140	1.00	.772	-.159	.453	-.152	-.185
RD2	-.030	.154	-.139	-.063	-.121	.063	.011	-.055	-.287	.772	1.00	-.207	.560	.052	-.141
RD7	-.182	.333	-.068	.091	-.090	-.212	-.071	-.198	.585	-.159	-.207	1.000	-.280	-.073	.479
RT1	-.069	.103	.360	-.196	.341	.405	-.174	.173	-.285	.453	.560	-.280	1.000	-.186	-.309
RT2	.625	-.402	-.258	-.173	-.275	.162	.516	-.119	-.242	-.152	.052	-.073	-.186	1.000	-.147
RT6	-.182	.400	-.153	.013	-.159	-.226	-.028	.013	.523	-.185	-.141	.479	-.309	-.147	1.000

Table A4. 3: Correlation matrix for rim attributes from Bubembe, Bukasa and Bubeke surface survey assemblages, highlighting the co-occurrence of attributes within assemblages

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.536	14.633	14.633	4.536	14.633	14.633
2	3.458	11.154	25.787	3.458	11.154	25.787
3	2.744	8.850	34.638	2.744	8.850	34.638
4	2.134	6.884	41.522	2.134	6.884	41.522
5	1.958	6.317	47.838	1.958	6.317	47.838
6	1.914	6.175	54.014	1.914	6.175	54.014
7	1.599	5.157	59.171	1.599	5.157	59.171
8	1.410	4.547	63.718	1.410	4.547	63.718
9	1.386	4.470	68.188	1.386	4.470	68.188
10	1.287	4.150	72.338	1.287	4.150	72.338
11	1.202	3.878	76.216	1.202	3.878	76.216
12	1.093	3.524	79.741	1.093	3.524	79.741
13	.937	3.021	82.762			
14	.862	2.779	85.541			
15	.747	2.411	87.953			
16	.729	2.351	90.304			
17	.588	1.897	92.201			
18	.527	1.699	93.900			
19	.396	1.277	95.177			
20	.362	1.169	96.346			
21	.292	.941	97.287			
22	.217	.701	97.988			
23	.206	.663	98.651			
24	.167	.539	99.190			
25	.125	.403	99.594			
26	.066	.214	99.808			
27	.026	.084	99.892			
28	.020	.064	99.956			
29	.013	.042	99.998			
30	.001	.002	100.000			
31	4.641E-017	1.497E-016	100.000			

Table A4. 4: Explanation of variance for rim principal components from Bubembe, Bukasa and Bubeke surface assemblages

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.718	19.416	19.416	2.718	19.416	19.416	2.498	17.842	17.842
2	2.408	17.197	36.613	2.408	17.197	36.613	2.282	16.299	34.141
3	2.054	14.668	51.282	2.054	14.668	51.282	2.012	14.370	48.511
4	1.885	13.462	64.743	1.885	13.462	64.743	1.979	14.133	62.644
5	1.575	11.252	75.996	1.575	11.252	75.996	1.869	13.351	75.996
6	.885	6.318	82.314						
7	.803	5.737	88.051						
8	.754	5.386	93.437						
9	.356	2.542	95.978						
10	.298	2.125	98.104						
11	.152	1.082	99.186						
12	.069	.493	99.679						
13	.045	.321	100.000						
14	-1.556E-016	-1.112E-015	100.000						

Table A4. 5: Explanation of variance for principal components utilising all attributes contributing more than 15% variance from Bubembe, Bukasa and Bubeke surface assemblages

	Component				
	1	2	3	4	5
Magnetic	.857				.120
Hematite	.812	.132		.152	.206
Quartz	-.709			-.112	.146
Medium		.964			
Coarse		-.957	-.150		
Stylus	-.415	.494	.103		-.165
Fine			.982		
Grog			.972		
cord wrapped paddle	.115			.950	
Grass				.946	
KPR	.226	-.222	-.177	-.115	.829
CWR	-.315			-.113	-.626
TGR	-.186	.254		-.190	.597
Undecorated	.460	-.218		-.286	-.565

Table A4. 6: Eigenvector loadings for each Principal Component from the total PCA on surface assemblages from Bukasa, Bubembe, and Bubeke